

University of Massachusetts Lowell

Division of Continuing Education

Spring 1993

\$ *Banking*
Undergraduate Courses

LAW
Retraining

MANUFACTURING

SECURITY MANAGEMENT

Environment

COMPUTERS

Classes Begin
January 19, 1993

Early Registration
Now through
January 7, 1993

General Registration
January 11 - 14, 1993

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Evenings
and
Saturdays

Design: Tepperman/Ray Associates

University of Massachusetts Lowell
Continuing Education
One University Avenue
Lowell, MA 01854-2881
(508) 934-2480

The University uses multiple mailing lists. If you receive a duplicate copy, please share it with a friend.

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Continuing Education Office Hours

Regular hours
Monday - Thursday, 8:30 a.m. - 8:30 p.m.
Friday 8:30 a.m. - 5:00 p.m.

Holiday Hours:
December 24: registrations will be taken until noon; office will close at 4 p.m.

December 25: Holiday
December 28, 29, 30, 8:30 a.m. to 5:00 p.m.

December 31: registrations will be taken until noon; office will close at 4 p.m.

January 1: Holiday
January 18, 1993: Martin Luther King Day Observed

February 15, 1993: Washington's Birthday Observed

March 15-20, 1993: Spring Recess

April 19, 1993: Patriot's Day Observed

April 30, 1993: University Day

For general and academic questions concerning Continuing Education, please call: **(508) 934-2480**.

To register by phone, please call: **(508) 934-2700**.

Need help setting career and education goals?

Plan to Attend Our Career Development Workshop

When

Session I
December 15, 1992
6:30-8:00 p.m.

or

Session II
January 7, 1993
6:30-8:00 p.m.

Where

Evans Lounge, Second Floor, Falmouth Building (enter behind Cumnock Hall)

There is no charge for this workshop.

To register, call the Continuing Education Office, (508) 934-2480.

Special Programs SPRING 1993

Writer's Conference
(March 5-7)

Interchange Conference
(March 15 & 16)

CADKEY
(January 12-15 & March 16-18)

Plastics Engineering Seminars
(Jan-Aug.)

Company-Wide Quality Series
(May-July)

For further information or a brochure, please call (508)-934-2405.

Academic Information

One of the primary goals of Continuing Education is to provide college credit with the working person in mind.

Admission to a Degree Program

Students who have graduated from high school or who have earned a high school equivalency certificate are invited to apply for programs leading to Associate or Baccalaureate degrees. In order to matriculate, students must formally apply to a degree program. Applications for all programs are accepted on a rolling admissions basis. Contact the Division of Continuing Education Office at (508) 934-2480 for an application and information on the application procedure. There is no fee to apply.

The following career-oriented degree programs and certificate programs are available on a part-time evening basis.

College of Engineering

Associate's Degree

Civil Engineering Technology
Civil Engineering Technology: Surveying Option
Electronic Engineering Technology
Mechanical Engineering Technology

Bachelor's Degree

Civil Engineering Technology
Civil Engineering Technology: Environmental Option
Electronic Engineering Technology
Mechanical Engineering Technology

College of Arts and Sciences

Associate's Degree

Applied Chemistry
Applied Chemistry: Biotechnology Option
Applied Chemistry: Hazardous Waste Option
Applied Mathematics
Applied Mathematics: Computer Mathematics Option
Information Systems

Public Service: Administration of Criminal Justice

Bachelor's Degree

Applied Chemistry
Applied Chemistry: Coatings Option
Applied Mathematics
Applied Mathematics: Computer Mathematics Option
Criminal Justice
Criminal Justice: Paralegal Option
Information Systems
Liberal Arts degree in the Social Sciences with concentrations in Psychology, Sociology, History, Political Science

College of Management

Associate's Degree

Accounting
Banking
Management

Certificate Programs

Banking
Computer Proficiency
Data Communications
Environmental Technology
Security Management
Manufacturing Technology
Paralegal
Surveying
Technical Writing
UNIX
Water Treatment
Wastewater Treatment

Important: Graduation Interview Date

Students who expect to complete their degree requirements in the 1992-1993 academic year must arrange for a graduation interview at the Office of Continuing Education. Students who anticipate graduating at the end of the spring semester must complete the interview process by **March 12**. A fee of \$75.00, that covers a diploma and a cap and gown rental, is required of all graduating students. Degrees for spring candidates will be awarded at the commencement ceremony on June 6, 1993.

General Information

Catalog

Students should refer to the catalog for rules, regulations, program outlines, and course descriptions. The 1990-1992 catalog is available in the Office of Continuing Education. Catalogs are available free upon request. Call (508) 934-2480.

Identification Card

Students registering in person will get an ID card during office walk-in registration and general registration. Students who register by phone or mail will receive their I.D. by return mail with their letter of confirmation.

Parking

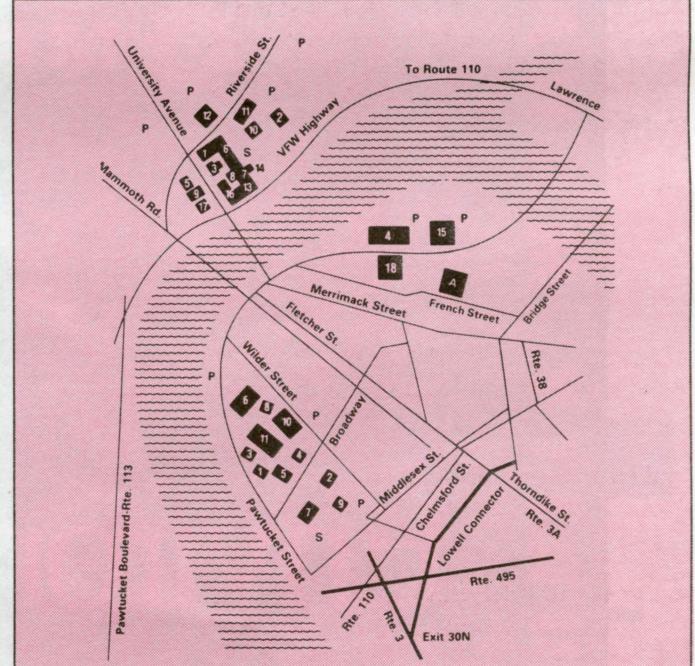
In order to obtain a parking sticker, students should bring their valid car registration to Cumnock Auditorium during General Registration (January 11-14, 5:30 - 8:00 p.m.) or during the first week of classes (January 19-21, and Jan. 25, 5:30 - 8:00 p.m.). Students may receive a sticker (at no charge) at the same time they register for classes. Students who register by mail or phone may also receive their stickers or bring their car registration to University Police Headquarters in Ball 125, North Campus (open 24 hours a day, 7 days a week). This sticker entitles students to park after 5:30 p.m. in any University parking lot except at Cumnock Hall, Southwick Hall, and Olsen during the 1992-1993 academic year. Students should not park in "Residential Parking" areas. Lowell Police will tow.

Students with Disabilities

Any disabled student who needs special arrangements should contact Pauline A. Carroll early in the registration process. Special advising, registration assistance, preferential scheduling, and alternative examination procedures are available. Students must qualify for handicapped parking stickers. Special parking is also available on a temporary basis.

Library Hours

(Spring Term)
Sunday 1:00 p.m.-12:00 midnight
Monday - Thursday 7:30 a.m.-12:00 midnight
Friday 7:30 a.m.-5:00 p.m.
Saturday 9:00 a.m.-5:00 p.m.



Registration Information

Plan ahead and register early. The chances of being enrolled in the course of your choice are better when you register early.

We encourage you to mail-in or phone in your registration!

Mail-In Registration

Through December 30, 1992

1. Fill out registration form and return it postmarked no later than December 30, 1992.
2. Mail to:
University of Massachusetts Lowell
Continuing Education
One University Avenue
Lowell, MA 01854-2881
3. Payment must be made with the registration form, either by check, money order, VISA, or Master Card. Make checks payable to: University of Massachusetts Lowell
4. Students will receive class confirmation, room assignment, receipt and ID by mail before the first class meeting.

Office Walk-In Registration

Through January 7, 1993

Payment must be made at the time of registration. Students will receive class confirmation, room assignment, receipt, and ID at the time they register. Please refer to Continuing Education Office hours for walk-in registration times.

Phone-In Registration Dates Through December 30, 1992

1. Payment can be made by VISA or Master Card only.
2. Call (508)-934-2700. Please refer to Continuing Education Office hours for phone-in registration times. The registration staff may take only registration information. If you have any questions concerning courses and academic programs, please call (508) 934-2480.

General Registration Dates January 11, 12, 13, 14, 5:30-8:00 p.m.

Students may register in person during general registration from 5:30 to 8:00 p.m. in Cumnock Hall Auditorium. Appropriate forms will be available at the time of registration. Faculty coordinators will be available for academic advising during this registration period.

Late Registration

January 19, 20, 21, 25 in Cumnock Auditorium, 5:30 - 8:00 p.m.

Due to the unique nature of the Community Education Noncredit Courses, registrations cannot be accepted after the first class meeting.

There is an additional \$10.00 fee for late registration. Changes from credit to audit status are also limited to this two-week period.

Final Drop/Add Period

Before the third class meeting, in the Office of Continuing Education.

Last Week to Withdraw with "W" Notation

Prior to the eighth class meeting. Students withdrawing from any class must officially notify the Office of Continuing Education on forms provided by the Office. Verbal messages to faculty or staff do not constitute official notification.

PART-TIME DAY CLASSES ENCORE PROGRAM

INTERESTED IN RETURNING TO SCHOOL PART-TIME DURING THE DAY TO WORK ON A BACHELOR'S DEGREE?

YOU CAN PURSUE A DEGREE PART-TIME IN:

- ENGINEERING
- FINE ARTS
- HEALTH PROFESSIONS
- MANAGEMENT
- MATHEMATICS AND SCIENCE
- SOCIAL SCIENCES AND HUMANITIES

WITH THE HELP OF TUTORING, STUDY SKILLS AND PERSONALIZED ADVISING, WE CAN HELP YOU MAKE THE TRANSITION A SMOOTH ONE.

FOR MORE INFORMATION, CALL THE UNIVERSITY'S ENCORE OFFICE AT: (508) 934-2944.

Financial Information

Tuition is priced on the basis of credit hour unless contact hour is different. Tuition is then based on the listed contact hour.

Tuition and Fee Information

Registration (nonrefundable)	\$25.00
Undergraduate Tuition (per credit/contact hour)	\$95.00
Late Registration Fee	\$10.00
Laboratory Fee	\$40.00

Tuition Refund Policy for Credit Courses

Any eligibility for tuition refund is based on the academic calendar, not class attendance, and is pro-rated as follows:
Withdrawal before first class meeting 100%
Before the second class meeting 90%
Before the third class meeting 50%
After third class meeting no refund

Fees will be refunded in full if Continuing Education is responsible for cancellations.

Tuition Refund Policy for Noncredit Courses

Participants who withdraw before the first class meeting will receive the total amount paid excluding the \$15.00 registration fee.
Before the second class meeting 50%
After the second class meeting no refund

Veterans' Information

Veterans must have all appropriate paperwork on file in the Continuing Education Office, including a DD214, an Admission Application form, and official transcripts from other colleges in order to receive VA benefits. Waivers are not retroactive and do not cover registration and other fees. In addition, veterans requesting benefits must check the appropriate line on the registration form.

Third Party Payment

All students using company direct payment, military plans, state tuition waivers, or veterans' waivers must include the appropriate forms or authorizing letters with their registration, or have them on file. No tuition refund is awarded for late submission of eligibility form. Students receiving company reimbursement must prepay their own tuition.

Tuition Waiver

State Employees must present a certificate of eligibility at the time of registration.

Senior Citizens

Senior citizens (60 years or older) may attend classes in continuing education credit programs tuition-free provided that there are sufficient tuition paying students enrolled to bear the cost of instruction and provided there is space available. Please note that waivers are not retroactive and do not cover registration and other fees.

Student Health Insurance

Students who are enrolled in at least 9 semester hours in a degree program are required by Massachusetts State legislation to participate in a qualifying student health insurance program. The cost of this insurance is approximately \$250.00 for the spring and summer semesters. To waive participation in this program students must fill out a form showing equivalent coverage.

U/MASS LOWELL

DAY

ADMISSIONS

Undergraduate and graduate degrees are offered part-time and full-time in:

- Engineering (Call: 508-934-2570)
- Business Administration (Call 508-934-2850)
- Industrial Management (Call: 508-934-2850)
- Manufacturing (Call: 508-934-2850)

Classes Begin January 1993. Financial Aid Available.

Retrain and Retool

I

In a world that is constantly changing, forward thinking students are retraining and retooling to remain competitive.

Are you interested in:

- Unlocking your future?
- Breaking loose from a dead end job?
- Utilizing your talents better?
- Opening up pathways for a promotion?
- Discovering rewarding opportunities in emerging industries?
- Exploring alternative career fields?

Then the Division of Continuing Education can help you with over 29 degree programs and 11 certificate programs.

Certificate programs provide opportunities to obtain marketable skills within a concentrated time frame.

Designed for adults who want specialized skill sets but do not want to pursue a degree program, the certificate programs offer rigorous courses of study in specific areas. In most cases curricula are reviewed and approved by an advisory board of experts.



Most certificate programs allow students to count these courses towards an Associate or Bachelor's degree, or as a stepping stone to future education and training.

We invite you to review all of our course offerings and start moving into the future.*

Special Note: The Higher Education Amendments of 1992 will open up new opportunities for continuing education students to help finance their educations. Beginning in the Spring of 1993, more funding will become available for those who want to pursue their educational goals through part-time study.

Certificates At A Glance

- Certificate in Paralegal Studies
- Certificate in Environmental Technology
- Certificate Program in Manufacturing Technology
- Certificate Program in Banking Studies
- Certificate Program in Security Management
- Certificate Program in Computer Proficiency
- Certificate Program in UNIX
- Certificate Program in Technical Writing
- Certificate Program in Data Communications
- Certificate Program in Water Treatment
- Certificate Program in Wastewater Treatment

*P.S. if you want to accelerate your educational program, you may want to check out our special Winter Intersession. Please see Page 5 for further details on this highly concentrated session.

Certificate in Environmental Technology and B.S. in Civil Engineering Technology (Environmental Option)

Conflicts between our environmental and societal needs have created a massive intellectual and engineering dilemma. Technical personnel and engineers with in-depth knowledge and technical expertise in the environment will be needed to meet the challenge of the 1990's. According to a recent article in the Wall Street Journal, (October 21, 1991) colleges will not produce enough environmental engineers to provide the manpower needed by the private and public sector to implement the increasingly complex regulations of the Environmental Protection Agency. Rewarding and lucrative career paths will be available for those who are qualified to contribute to the massive clean-up of the environment.

To supply this large demand for technical personnel and engineers with expertise in the environment, UMass Lowell is introducing a Certificate Program in Environmental Technology and an Environmental Option to its Civil Engineering Technology degree. The Certificate

Program is designed for technicians and support personnel employed in safety, laboratory, physical plant, distribution, transportation, drafting, public works or health board functions, as well as consultants. In addition, this Program will update engineers in various disciplines who need to understand current environmental laws and compliance technologies. Program graduates might expect to assist in projects such as air pollution control, resource recovery, analytical services, hazardous waste management, waste management, water infrastructure, instrument manufacturing, solid waste management, energy sources, asbestos abatement, and water utilities development.

All Certificate courses apply to the B.S. in Civil Engineering Technology (Environmental Option) degree.

Required Courses:

- 15.340 Hazardous Waste Management
- 15.372 Air Quality Management
- 15.420 Solid Waste Management
- 84.121 Chemistry I
- 84.122 Chemistry II

Electives (Choose 2):

- 15.356 Water Treatment
- 15.358 Wastewater Treatment
- 15.410 Industrial Waste Treatment
- 41.367 Environmental Law and Regulation
- 87.103 Earth and Its Environment

With a bachelor's degree in Civil Engineering Technology (Environmental Option), the working professional earns credentials as an engineering technologist. An engineering technologist will have the technical background needed to work in many environmentally related areas, including: solid waste, water treatment operation and design, wastewater treatment operation and design, groundwater remediation, solid waste management, hazardous waste management, and air quality monitoring.

Advising Information

Advisors and faculty coordinators who can answer your questions and assist you in course selection are available for appointments during the fall and spring semesters. To schedule an appointment, call the Office of Continuing Education at (508) 934-2480.

Our evening supervisors are also available in the Office of Continuing Education on a walk-in basis (Monday through Thursday, 5:00 - 8:00 p.m.) during the academic year for status reviews of a student's academic program. They can also assist in course selection.

The faculty coordinators will also be available in Cumnock Auditorium during the week of General Registration for advising (January 11-14).

Evening Supervisors

Professor Alan Doerr
Professor Bernard Shapiro

Faculty Coordinators

Professor Donald R. Berry: Liberal Arts, Criminal Justice
Professor Alan Doerr: Applied Mathematics, Physics, Environmental Sciences
Professor Stephen Driscoll: Industrial Technology : Plastics Option
Professor Ann Marie Hurley: Computer Math Option, Information Systems, Chemistry, Biology
Professor J. Robert A. Lemieux: Electronic Engineering Technology
Professor Joseph Lipchitz: Paralegal Studies
Professor Richard Minesinger: Mechanical Engineering Technology, Manufacturing
Professor Donald Pottle: Civil Engineering Technology, Water/Wastewater, Environmental Technology
Dr. Kathryn Verreault Accounting, Banking, Management
Ms. Pauline Carroll: General Advising
Ms. Joan Kilday: General Advising

Academic Calendar Spring 1993

Classes begin January 19, 1993

Most classes are held 7:00-10:00 p.m. unless otherwise indicated. We also offer courses on Saturdays 9:00 a.m. to noon, and Monday through Thursday from 6:00 p.m. to 9:00 p.m.

Holidays

January 18, 1993: Martin Luther King Day Observed
February 15, 1993: Washington's Birthday Observed
March 15-20, 1993: Spring Recess
April 19, 1993: Patriot's Day Observed
April 30, 1993: University Day

Commencement Ceremony

Sunday, June 6, 1993

Monday Classes

January 25,
February 1, 8, 16 (Tuesday), 22
March 1, 8, 22, 29
April 5, 12, 23 (Friday) 26
Exam: May 3

Thursday Classes

January 21, 28
February 4, 11, 18, 25
March 4, 11, 25
April 1, 8, 15, 22
Exam: April 29

Tuesday Classes

January 19, 26
February 2, 9, 23
March 2, 9, 23, 30
April 6, 13, 20, 27
Exam: May 4

Saturday Classes

January 23, 30
February 6, 13, 20, 27
March 6, 13, 27
April 3, 10, 17, 24
Exam: May 1

Wednesday Classes

January 20, 27
February 3, 10, 17, 24
March 3, 10, 24, 31
April 7, 14, 21
Exam: April 28

Make-up dates for classes: February 19, March 26, April 16.

Coming this Summer!

British Criminal Justice & Politics at Queens College, in Oxford England

Learn about the British Criminal Justice system and its political settings while touring Oxford, London, and environs.

For further information call Professor Eve Buzawa at (508)- 934-4262.



This newspaper is printed at no cost to the Commonwealth of Massachusetts. The University of Massachusetts is an Affirmative Action/Equal Opportunity University and does not discriminate on the basis of race, sex or handicap status in its educational programs, activities, or employment policies as required by Title IX of the Education Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973, as amended.

Every effort has been made to ensure the accuracy of the information presented in this bulletin. However, the Division of Continuing Education reserves the right to implement new rules and regulations and to make changes of any nature in its program, calendar, locations, tuition, and fees. Whenever possible, appropriate notice of such changes will be given before they become effective.

In registering for courses, each student assumes full responsibility for knowledge of and compliance with the definitions, regulations, and procedures for the University as set forth in the appropriate publications and bulletins.

Registration Form for Credit and Non-Credit Courses

University of Massachusetts Lowell

Continuing Education
One University Avenue
Lowell, MA 01854

PLEASE USE INK AND PRINT

✓ CHECK APPROPRIATE REGISTRATION STATUS:

Credit Program Community Education

Social Security No. _____

Name _____ (Last) _____ (First) _____ (Middle)

Street & No. _____

City & State _____ Zip Code _____

Change of name or address since last registration? yes _____ no _____ Former name _____

Are you a veteran with benefits? yes _____ no _____ Chapter number _____

Date _____

Sex: M _____ F _____ Date of Birth _____

Work phone (_____) - _____

Home phone (_____) - _____

REQUESTED ETHNIC IDENTIFICATION

- Asian or Pacific Islander
- Black
- Cape Verdean
- Foreign
- Hispanic
- American Indian
- White, Non-Hispanic
- Other

Handicap? yes _____ no _____

COURSES FOR WHICH YOU ARE REGISTERING			
COURSE NUMBER	COURSE TITLE	CREDITS	OFFICE USE
.	-		
.	-		
.	-		
.	-		
.	-		

Complete if paying by Credit Card:

MASTERCARD VISA ACCT. NO. _____

Expiration Date _____ / _____ Customer Signature _____

Tuition and Fees

Registration Fee

Credit \$25.00	Non-Credit \$15.00
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Tuition

Lab

Late Fee

Other

Total \$

For office use:

Continued on Page 5

To register early with MasterCard or Visa call (508) 934-2700

1993 WINTER INTERSESSION

January 4-16

A HIGHLY CONCENTRATED SESSION THAT WILL ALLOW YOU TO ACCELERATE YOUR EDUCATIONAL PROGRAM.

Are you:

- * Searching for a smart way to spend your winter break?
- * Interested in fulfilling Area I, II, or III electives?
- * Looking for a way to earn transfer credits quickly?
- * Ready to study Art History in Greece?

Then our Winter Intersession has been designed especially for you!

Students can earn college credit during their Winter break by taking courses in such areas as: Arts and Sciences, Mathematics, Computers, Humanities, Social Sciences, Management and Music.

Expanded course offerings are available during both day and evening sessions. Day classes are held from 9:00 am to 12:30 p.m. including Saturdays. Evening classes are held Monday thru Friday from 6:00-9:30 p.m. and on Saturday from 1:00 p.m. to 4:30 p.m.

The following courses are available:

Accounting

60.201 Accounting/Financial
60.202 Accounting/Managerial
67.101 Accounting Principles I
67.209 Federal Income Taxes

Art

79.490 Art History Seminar in Greece

Biology

83.101 Life Science I
83.102 Life Science II

Chemistry

84.101 Applied Chemistry for Non-Scientists

Computer Mathematics

92.202 Microcomputer Applications and Software
92.267 C Programming
92.311 Introduction to the UNIX Operating System
92.360 Intro. to Data Structures
92.470 Data Communications

Criminal Justice

44.111 Introduction to Industrial Security
44.201 Computer Applications in the Criminal Justice System
44.261 Juvenile Delinquency
44.351 Community-Based Corrections

Economics

49.201 Economics I: Microeconomics
49.202 Economics II: Macroeconomics
49.211 Statistics for Business and Economics I
49.212 Statistics for Business and Economics II

English

42.211 Poetry
42.212 The Short Story
42.224 Business Writing
42.226 Technical and Scientific Communication

Languages

50.374 Classics of French Cinema
52.378 Italian Cinema and Culture
54.101 Beginning Spanish I
54.211 Intermediate Conversational Spanish I
54.212 Intermediate Conversational Spanish II

Legal Studies

41.262 Business Law I

Management

62.301 Marketing
66.435 Comparative Management
69.221 Marketing Principles
69.253 Introduction to Management and Organizational Behavior

Mathematics

92.111 Math Perspectives
92.121 Precalculus Mathematics

Mechanical Engineering Technology

23.200 CADr (Computer-Aided Drawing)

Music

71.100 Basic Music Theory
74.161 Music of Western Civilization

Paralegal Studies

44.103 Introduction to Paralegal Studies
44.301 Computer Applications for the Legal Profession

Philosophy

45.201 Introduction to Philosophy
45.202 Introduction to Logic
45.203 Introduction to Ethics

Physics

95.121 Exploring the Universe

Political Science

46.101 Introduction to American Politics
46.121 Introduction to International Relations

Psychology

47.101 General Psychology
47.232 Psychology of Personality
47.260 Human Development I
47.328 Dynamics of Interpersonal Relations
47.335 Psychology of Women

Sociology

48.101 Introduction to Sociology
48.220 Self-Assessment and Career Development
48.231 Sociology of the Family
48.301 Sociology of Human Rights

Water/Wastewater

15.226 Water Chemistry II

For a Winter Intersession Bulletin and registration form, please contact the Division of Continuing Education at 508-934-2480. You should not use the Spring Registration form to register for Winter Intersession courses.

Academic Credit Course Listing

No.	Title	Credit (Contact Eve. Hrs.)	P: Prerequisite C: Corequisite/Comments	Instructor
Accounting				
67.101-1	Accounting Principles I	W 3		Charles Thompson
67.101-2	Accounting Principles I (6:00-9:00 pm)	Th 3		Clairmont Carter
67.102-1	Accounting Principles II	Th 3	P: 67.101	Daniel Brosnan
67.102-2	Accounting Principles II (9:00 am-12 noon)	Sat. 3	P: 67.101	Peter Gibson
67.204-1	Intermediate Accounting II (6:00-9:00 pm)	Th 3	P: 67.203	John Hamer
67.206-1	Cost Accounting	M 3	P: 67.102	James Sheehan
67.209-1	Federal Income Taxes	T 3	P: 67.102	Frank Padellaro
NOTE: The above accounting courses will not transfer into the College of Management Day programs.				
Art				
79.101-1	Art Appreciation	W 3	Area II	Rosemary Noon
79.281-1	Ceramics I	T/Th 3 (6)		James Coates
Banking				
69.101-1	Principles of Banking	M 3		Vivek Kulcarni
69.104-1	Analyzing Financial Statements	T 3		J. Clancy
69.109-1	Marketing for Bankers	W 3		Kenneth Masson
69.118-1	Law & Banking: Applications	T 3		Paul Surprenant

Continued from Page 4

Curriculum for B.S., CET, Environmental Option (134 credits)

The B.S. in Civil Engineering Technology, Environmental Option requires the same courses as the Structural Option, except for these eight courses:

- 15.356 Water Treatment
- 15.340 Hazardous Waste Management
- 15.358 Wastewater Treatment
- 15.360 Water and Wastewater Laboratory
- 15.372 Air Quality Management
- 15.396 Groundwater Resources
- 15.420 Solid Waste Management
- 41.367 Environmental Law

These courses replace the following from the Structural Option:

- 15.238 Dynamics
- 15.352 Structural Analysis II
- 15.356 Environmental Technology
- 15.383 Steel Design II
- 15.391 Reinforced Concrete II
- 15.465 Construction Technology
- 15.486 Transportation Elements
- 17.130 Electrical Barrier and Laboratory

THE WOODS-HOLE U MASS LOWELL CONTINUING EDUCATION PROGRAM

The University of Massachusetts Lowell is pleased to announce the second year of its on-site education program at the Woods-Hole Oceanographic Institution.

During the 1991-92 academic year 150 students from the Woods-Hole and Falmouth area enrolled in 12 evening classes.

Expanded offerings for the spring 1993 semester will include courses in:

- Management
- Computers
- Mathematics
- Science
- Technology
- Liberal Arts

Courses are open to the general public on a space available basis and will be held at the Woods-Hole Oceanographic Institution. Specific course schedules will be available by December 15th.

For further information about this program please contact the Office of Special Programs at 934-2491.

Academic Credit Course Listing

"Future bank employees will have to excel in banking and customer service, thrive in an ever-changing dynamic environment, and commit themselves to upgrading their skills through continuing education."

Perry Vachon, President
Merrimack Valley
Chapter American
Institute of Banking

Certificate Program in Banking Studies

This new certificate program is designed primarily for entry level personnel such as tellers, customer service representatives, mid-management staff, and support staff in consumer lending and retail banking looking to move up the career ladder. Students interested in entering the field of banking will also benefit from the program.

Over the past several years, due to deregulation, failures, mergers, and the changing economy, the banking industry has experienced dramatic changes.

According to a recent article in the May 1992 issue of *Banker and Tradesman*, Kathleen Jones from the Massachusetts Bankers Association, says bank



employees will have to "cope with greater managerial demands and a more difficult business environment than bankers have ever had to face before." Given the increasingly competitive banking environment and the need for training, UMass Lowell and AIB have developed a Certificate Program in Banking Studies. This certificate will provide bank employees or prospective banking professionals with the knowledge and skills needed to advance in this challenging field. The six courses in the Certificate include:

- 42.224 Business Writing
- 67.101 Accounting Principles I
- 69.101 Principles of Banking
- 69.105 Consumer Lending
- 69.127 Financial Planning
- 67.117 Law and Banking: Principles

These courses can be applied towards the University's Associate degree in Banking. With the exception of the Business Writing course, all courses apply to the American Institute of Banking's General Banking Diploma (which requires six courses) and also to AIB's Consumer Credit Diploma (which requires nine courses).

The Associate of Science degree in Banking is offered in the Division of Continuing Education at the University of Massachusetts Lowell in cooperation with the Merrimack Valley Chapter of the American Institute of Banking (AIB).

Biological Sciences

35.211-1 Basic Clinical Microbiology (6:00-9:00 pm) (Tues: 2 hr. lecture; 1 hr lab)	T/Th	3	P: 35.102; C: 35.213	Jacob Lam
35.213-1 Basic Clinical Microbiology Lab (6-9 pm) (Thurs: 2 hr. lab; 1 hr lecture) (Lab Fee)	T/Th	1 (3)	P: 35.102; C: 35.211	Jacob Lam
81.112-1 Principles of Biology II	W	3	P: 81.111; C: 81.113	Larry Lewis
81.114-1 Principles of Biology II Lab (Lab Fee)	M	1(3)	C: 81.112	Larry Lewis
83.101-1 Life Science I (6:00-9:00 pm)	T	3	C: 83.103; Area III	Gail Skinner-Brassard
83.103-1 Life Science I Lab (7:00 -9:00 pm) (Lab Fee) (Taken with 83.101 for Lab Science requirement)	Th	1 (2)	C: 83.101; Area III	Gail Skinner-Brassard
86.343-1 BiotechnologyLab I (Lab Fee)	TBA	1 (3)	P: 86.341	Departmental Staff

Chemistry

84.121-1 Chemistry I	Th	3		Peter Gabriel
84.122-1 Chemistry II	Th	3	P: 84.121	Philip Lamprey
84.224-1 Principles of Organic Chemistry II	M	3	P: 84.223; C: 84.226	William Bannister
84.226-1 Principles of Organic Chem. Lab II (Lab Fee)	T	1 (3)	P: 84.225; C: 84.224	William Bannister
84.345-1 Physical Chemistry II	Th	3	P: 84.344; C: 84.347	Chong Pyun
84.347-1 Physical Chemistry Laboratory II (Lab Fee)	T	1 (3)	P: 84.346; C: 84.345	Paul Damour
86.122-1 Analytical Chemistry B	W	3	P: 86.121	Kuang-Pang Li
86.343-1 Biotechnology Lab I (Lab Fee)	TBA	1 (3)	P: 86.341	Departmental Staff
86.362-1 Advanced Organic Chemistry II	T	3	P: 86.361	Harold Garey
86.482-1 Chemistry of High Polymers II	Th	3	P: 86.481	Harold Garey

Cinema and Culture

59.209-1 Western Cultural Heritage II	W	3	Area II	Mario Aste
52.378-1 Italian Cinema & Culture	M	3	Area II, Human Values	Mario Aste

Civil Engineering Technology

15.113-1 CAD (Lab Fee)	T	2 (3)	P: 23.101	Todd McGrath
15.124-1 Surveying II (Lab Fee)	M	4 (4.5)	P: 15.123	Robert Hogan
15.224-1 Material/Structural Lab (Lab Fee)	W	1 (3)	P: 15.251,15.253,15.254	Departmental Staff
15.242-1 Steel Design I	M	3	P: 15.251	Stephanie Bartley
15.247-1 Hydraulics Lab (Lab Fee)	M	1 (3)	P: 15.246	Allen Bondeson
15.257-1 Highway Elements	Th	3	P: 15.124	Douglas Gordon
15.262-1 Legal Aspects of Surveying	Th	3		Carlton Brown
15.352-1 Structural Analysis II	T	3	P: 15.251	Stephanie Bartley
15.358-1 Wastewater Treatment	W	3	P: 15.356	Mark Laquidara
15.391-1 Reinforced Concrete II	Th	3	P: 15.253	Jan Morrill
15.392-1 Soil Mechanics II	T	3	P: 15.254	Harvey Stoller
15.394-1 Soil Mechanics Lab (Lab Fee)	Sat.	1 (3)	P: 15.254	Harvey Stoller
15.396-1 Groundwater Resources	Th	3	P: 15.356	Steve Smith
15.420-1 Solid Waste Management	M	3	Jr. standing or inst. perm.	Departmental Staff
23.221-1 Statics (formerly 15.237)	W	3	P: 92.125,99.131; C: 92.126	Robert Hollenbach
23.223-1 Mechanics of Materials (formerly 15.239)	W	3	P: 15.237	Hany Riad
23.222-1 Dynamics (formerly 15.238)	Th	3	P: 92.126,23.221	John McKelliget

NEW Certificate in Environmental Technology. (See page 4 for required courses.)

Clinical Laboratory Sciences

35.102-1 Human Anatomy and Physiology II (6-9 pm)	T	3	P: 35.101; C: 35.104	Ted Namm
35.104-1 Human A. and P. II Lab (6-9 pm) (Lab Fee)	Th	1 (3)	P: 35.103; C: 35.102	Departmental Staff
35.104-2 Human A. and P. II Lab (6-9p.m.) (Lab Fee)	W	1 (3)	P: 35.103; C: 35.102	Alease Bruce
35.211-1 Basic Clinical Microbiology (6:00-9:00 pm) (Tues: 2 hr. lecture; 1 hr lab)	T/Th	3	P: 35.102; C: 35.213	Jacob Lam
35.213-1 Basic Clinical Microbiology Lab (6-9 pm) (Thurs: 2 hr. lab; 1 hr lecture) (Lab Fee)	T/Th	1 (3)	P: 35.102; C: 35.211	Jacob Lam

Computer Mathematics Option

90.160-1 Introduction to Information Systems	M	3		Ronald Claise
90.170-1 App. Software: Paradox	T	3		Ralph D'Amelio
90.268-1 Strategic Planning for Information Systems	M	3		R.L. Pitcher
90.457-1 Computer Ethics and Security	T	3	P: Junior status	Antonio Gellineau
92.202-1 Introduction to Microcomputers & Applications Software (Lab Fee) (6:00-9:00 pm)	M	3		Stephen Morehouse
92.202-2 Intro. to Micro. & Appl. Soft. Lab Fee)	M	3		Karen Harrington
92.202-3 Intro. to Micro. & Appl. Soft. (Lab Fee)	Th	3		Dennis Roffman
92.202-4 Intro. to Micro. & Appl. Soft. (Lab Fee) (6:00-9:00 pm)	Th	3		Karen Harrington
92.202-5 Intro. to Micro & Appl. Soft. (Lab Fee) (9:00 am-12:00 noon)	Sat.	3		Thomas Fontanella
92.202-6 Intro. to Micro. & Appl. Soft. (Lab Fee)	W	3		Ronald Claise
92.209-1 *Introduction to BASIC (Lab Fee)	M	3	P: 90.111 or equivalent	Maryann Simensen
92.211-1 Intro to Programming/Using C (Lab Fee)	T	3		Richard Desroches
92.211-2 Intro to Programming/Using C (Lab Fee)	Th	3		Ann Marie Hurley
92.219-1 *BASIC Programming (Lab Fee)	M	3	P: 90.111 or equivalent, working knowledge of some other programming language or E.E.T. major	Christos Dabekis
92.219-2 *BASIC Programming (Lab Fee)	Th	3	P: 90.111 or equivalent, working knowledge of some other programming language or E.E.T. major	Ralph D'Amelio
92.263-1 FORTRAN Prog. (Lab Fee)	T	3	P: 90.112 or 92.121 or equivalent	Lee Panas
92.263-2 FORTRAN Prog. (Lab Fee) (6:00-9:00 pm)	W	3	P: 90.112 or 92.121 or equivalent	Richard Shifman
92.263-3 FORTRAN Prog. (Lab Fee) (9:00 am -12:00 noon)	Sat.	3	P: 90.112 or 92.121 or equivalent	Lee Panas
92.265-1 Pascal Programming (Lab Fee)	M	3	P: Area III	James Doherty
92.265-2 Pascal Programming (Lab Fee)	W	3	P: Area III	Patrick Hoffman
92.265-3 Pascal Prog. (Lab Fee) (9:00 am-12:00 noon)	Sat.	3	P: Area III	Michael Sielian
92.267-1 C Programming (Lab Fee)	M	3	P: 92.265	Frank Quatieri
92.267-2 C Programming (Lab Fee)	M	3	P: 92.265	Paul Farrell
92.267-3 C Programming (Lab Fee)	W	3	P: 92.265	Steven Esposito
92.267-4 C Programming (Lab Fee)	Th	3	P: 92.265	Victor Gagnon

Academic Credit Course Listing

92.267-5 C Programming (Lab Fee) (6:00-9:00 pm)	M	3	P: 92.265	Timothy Niesen
92.267-6 C Programming (Lab Fee)	W	3	P: 92.265	Mitchell Rosich
92.267-7 C Programming (Lab Fee)(9:00 am-12 noon)	Sat.	3	P: 92.265	Patrick Hoffman
92.267-8 C Programming (Lab Fee)	T	3	P: 92.265	Herbert DaSilva
92.268-1 C++ Programming (Lab Fee)	M	3	P: 92.267	Lance Smith
92.268-2 C++ Programming (Lab Fee)	W	3	P: 92.267	Lance Smith
92.268-3 C++ Programming (Lab Fee)	T	3	P: 92.267	Mark Hertel
92.311-1 Intro. to UNIX Op. System (Lab Fee)	M	3	P: 92.267, 92.360	Andrew Garside
92.311-2 Intro to UNIX Op. System (Lab Fee)	W	3	P: 92.267, 92.360	Lloyd Rutledge
92.311-3 Intro. to UNIX Op. System (Lab Fee)	Th	3	P: 92.267, 92.360	Sean McGowan
92.311-4 Intro. to UNIX Op. System (Lab Fee)	T	3	P: 92.267, 92.360	Departmental Staff
92.312-1 UNIX Shell Program(Lab Fee) (9:00 am-12 noon)	Sat.	3	P: 92.311	Michael DeMarco
92.312-2 UNIX Shell Programming (Lab Fee)	T	3	P: 92.311	Michael Richards
92.313-1 UNIX Internals Overview (Lab Fee)	T	3	P: 92.312	Ravi Tickoo
92.314-1 UNIX for Systems Programmers (Lab Fee)	M	3	P: 92.311	Edward D'Entremont
92.316-1 UNIX System Administration (Lab Fee)	M	3	P: 92.312	Brian O'Neill
92.317-1 Developing Portable Applications (Lab Fee)	Th	3	P: 92.311	Departmental Staff
92.360-1 Intro. to Data Structures/Pascal (Lab Fee) (6:00-9:00 p.m.)	M	3	P: 92.265 or 92.364, 92.321	Marvin Stick
92.360-2 Intro. to Data Structures/C (Lab Fee)	W	3	P: 92.267, 92.321	Michael Thoma
92.360-3 Intro. to Data Structures/C (Lab Fee)	W	3	P: 92.267, 92.321	Victor Alvarado
92.360-4 Intro. to Data Structures/C (Lab Fee)	M	3	P: 92.267, 92.321	Gerard Paquette
92.363-1 SPSSX (Intro. to Data Analysis) (Lab Fee)	Th	3	P: Basic Statistics	Alexander Olsen
92.364-1 Problem Solving with C (Lab Fee)	T	3	P: 92.265	Sean McGowan
92.365-1 COBOL Programming I (Lab Fee)	M	3	P: 92.209 or 92.219	Thomas Flaherty
92.368-1 COBOL Programming II (Lab Fee)	W	3	P: 92.365	Charles Grasso
92.419-1 Computer Algebra: MATHEMATICA (Lab Fee)	W	3	a two-semester sequence of college math	
92.455-1 Assembly Language Prog. I (Lab Fee)	T	3	P: 92.263 or 92.265	Antonio Gellineau
92.457-1 ADA (Lab Fee)	W	3	P: 92.265 or 92.267	Peter Weston
92.461-1 Systems Simulation and Modeling (Lab Fee)	T	3	P: 92.263 or 92.265,92.183	Robert Logan
92.463-1 Systems Design and Development I	T	3		Walter Luro
92.470-1 Data Communications (Lab Fee)	T	3	P: 92.265, 92.360	Departmental Staff
92.472-1 Local Area Networks (Lab Fee)	M	3	P: 92.470	Raymond Vigeant
92.473-1 Computer Network Arch. and Protocols	Th	3	P: 92.472	Alan Wu
92.474-1 Data Base Concepts (Lab Fee)	Th	3	P: 2 sems. of a higher level lang. excl. BASIC	Walter Cinsavich
92.475-1 Communications Network Mgmt. (Lab Fee)	W	3	P: 92.473	Raymond Vigeant
92.478-1 Information Systems II	Th	3	P: 92.477	R. L. Pitcher

*92.209 is for students with no prior programming experience. 92.219 requires prior programming experience.
Students cannot receive credit for both 92.209 and 92.219. Students may not receive credit for both 92.211 and 92.267.

Computer Science

91.303-1 Analysis of Algorithms (6:00-9:00 p.m.)	T	3	P: 92.267, 92.360	Departmental Staff
91.305-1 Computer Architecture(6:00-9:00 p.m.)	Th	3	P: 92.455	Departmental Staff

Criminal Justice (Also See Paralegal Studies)

44.211-1 Physical Security	W	3		Gerald Tully
44.233-1 Criminal Procedure	M	3		Mark Gauthier
44.251-1 Institutional Corrections	Th	3	P: 44.101	Steven Sacco
44.261-1 Juvenile Delinquency	W	3	P: 44.101	Joseph Burke
44.312-1 Security Management	W	3		John Pignato
44.360-1 Gender, Race, & Crime	M	3	P: 44.101	Diane Doherty
44.371-1 CJ Planning and Evaluation	T	3	P: 44.101	Linda Romano
44.373-1 Issues in Police Administration	T	3		James Rowe
44.385-1 Crime and Mental Illness	T	3		Ellsworth Fersch
44.401-1 Drugs and the Criminal Justice System	W	3		Ronald Corbett
44.490-1 Criminal Justice Research Seminar	M	3	P: 44.390	Frances Dallmeyer

Economics

49.201-1 Economics I (Micro)	T	3	P: 90.111 or 92.121; Area I	Departmental Staff
49.201-2 Economics I (Micro) (9:00 am-12:00 noon)	Sat.	3	P: 90.111 or 92.121; Area I	Albert Cederlund
49.202-1 Economics II (Macro)	W	3	P: 90.111 or 92.121; Area I	Ernesto Sanz
49.202-2 Economics II (Macro)	Th	3	P: 90.111 or 92.121; Area I	Michael Carter
49.211-1 Statistics I	T	3	P: 92.122 or equivalent	Paul Snoonian

Electronic Engineering Technology

17.131-1 Electronic Basics and Laboratory	M	2 (3)	P: 17.130 - not available for E.E.T. majors, 42.226	Thomas Coffey
17.213-1 Electric Circuits	W	3	P: 92.125 (may be taken concurrently), 92.219	William Sommer
17.214-1 Circuits and Laboratory I (Lab Fee)	W	2 (3)	P: 17.213, 42.226, 92.126 (may be taken concurrently)	James Drew
17.215-1 Circuits and Laboratory II (Lab Fee)	W	2 (3)	P: 17.214	Charles Butala
17.216-1 Advanced Circuits	W	3	P: 17.215	Philip Tays
17.317-1 Minicomputer Programming	W	3	P: 17.353, 92.219 or 92.263	Mark Roy
17.350-1 Control Systems I	Th	3	P: 17.216	George Biernson
17.353-1 Digital Electronics	W	3	P: 17.356, 17.371	William Samaras
17.355-1 Electronics and Lab I (Lab Fee)	Th	2 (3)	P: 17.215 (may be taken concurrently)	James Davis, Jr.
17.356-1 Electronics and Lab II (Lab Fee)	Th	2 (3)	P: 17.355	James Drew
17.357-1 Electronics and Lab III (Lab Fee)	W	2 (3)	P: 17.356	Don Drinkwater
17.358-1 Electronics and Lab IV (Lab Fee)	Th	2 (3)	P: 17.357	Francis Sullivan, Jr.
17.361-1 Project Laboratory A (Lab Fee)	W	2 (3)	P: 17.353, 17.358, 17.365	Arthur Bellemore
17.361-2 Project Laboratory A (Lab Fee)	Th	2 (3)	P: 17.353, 17.358, 17.365	David Wade
17.365-1 Applied Linear Devices	T	3	P: 17.350, 17.357	Khanh Luong
17.367-1 Digital Devices & Laboratory (Lab fee)	M	2 (3)	P: 17.353, 17.372 (May be taken concurrently)	Anh Tran
17.372-1 Logic Design II	Th	3	P: 17.371	J. Robert A. Lemieux
17.376-1 Electromagnetic Theory I	M	3	P: 17.350, 92.226, 99.133	Mark Russell
17.380-1 Microprocessor Basics (Lab Fee)	M	2 (3)	P: 17.371	Robert Dirkman
17.382-1 Problems in E. E. Technology	M	3	P: 17.353, 17.358, 92.265 or 92.267	Philip Arrigo

The Paralegal profession will be one of the fastest growing occupations during the 1990's. Current estimates project job opportunities for paralegals to double by the year 1995.

Source: United States Bureau of Labor Statistics.

Certificate Program in Paralegal Studies and B.S. in Criminal Justice, Paralegal Option

Featured as one of the "hot careers" of the 1990's in a recent article by the Boston Herald (May 12, 1992), paralegals are projected to be the fastest-growing occupation in Massachusetts, with over 3000 new jobs to be created by the year 2000.

UMass Lowell will offer students interested in pursuing this challenging field two options:

- 1.) A Paralegal Option within the Criminal Justice program leading to a Baccalaureate Degree; and
- 2.) A Credit Certificate Program in Paralegal Studies.

General Requirements for the Paralegal Certificate Program (7 courses):

41.103	Introduction to Paralegal Studies
41.390	Litigation
44.301	Computer Applications for the Legal Profession
41.387	Legal Research Methods
44.497	Paralegal Practicum/Internship

Specialty Requirements (Please choose two)

41.363	Corporate and Property Law
41.370	Real Estate Law
41.376	Family Law
41.391	Federal Taxation
Total requirements for the Paralegal Certificate Program: 21 credits	

This spring five courses are scheduled for the Paralegal Certificate Program: *Introduction to Paralegal Studies, Computer Applications for the Legal Profession, Legal Research Methods, Paralegal Practicum, and Family Law*. For specific dates and times please see course listings on page 10.

Admission Requirements:
Only applicants who have completed 45 hours of general college study or two years work experience in a legal field may be accepted as candidates for the Certificate of Paralegal Studies.

A Bachelor of Science Degree in Criminal Justice with a Paralegal Option is also offered by the Criminal Justice Department at the University of Massachusetts Lowell. For more information about the Paralegal programs, please call Cathy Kendrick at (508)-934-2495.

Academic Credit Course Listing

"In an era of renewed interest in manufacturing as an instrument for global competition, the need for engineering technologists with a thorough understanding of manufacturing processes will continue to grow"

Dr. Vernon Oliver,
Lead Engineer,
Mitre Corporation.

Certificate Program in Manufacturing Technology

Manufacturing technologists bring the elements of people, equipment, materials, information, and energy together in a production setting. There are less than 190,000 manufacturing engineers nationwide and the demand for their services is expanding. More manufacturing engineering expertise will be needed as the smokestack industries continue to disappear and as industry's technological needs expand.

This program is designed for technical personnel, supervisors, and managers involved in the many manufacturing technology disciplines that require a broad understanding of manufacturing processes, automation methods, and environments.

Focusing on the technology of manufacturing processes, the program is designed to correlate theoretical knowledge and the real world environment of manufacturing technology.



This certificate program can serve as a first step towards obtaining an undergraduate degree in manufacturing technology.

Participation in the program will prepare students for career advancement opportunities, including positions such as: senior technician, line supervisor, group leader, foreman, junior engineer, and senior analyst. In addition, experienced engineers and managers who need to update their skills in applying current manufacturing technologies will benefit from this program.

Certificate of Manufacturing Technology (21 Credits) 4 Required Courses and 3 Electives

(Required Courses):

- 23.200 Computer Aided Drafting
- 23.305 Manufacturing Processes (or
- 23.306 Manufacturing Processes for Electronic Products)
- 23.416 Statistical Quality Control
- 23.419 CAM Systems

Electives (Choose 3):

- 23.301 Manufacturing Technology Lab
- 23.310 Industrial Safety
- 23.314 Total Quality in Manufacturing
- 23.402 Engineering Measurement Lab
- 23.427 Plant Layout and Material Handling
- 23.473 Design for Manufacture
- 23.480 Computer Aided Design
- 93.386 Statistics for Science and Engineering

17.391-1 Project Laboratory B (Lab Fee)	W	2 (3)	P: 17.361, 17.367, 17.382, 17.4—E.E.T. EI	Arthur Bellemore
17.391-2 Project Laboratory B (Lab Fee)	Th	2 (3)	P: 17.361, 17.367, 17.382, 17.4—E.E.T. EI	David Wade
17.392-1 Project Laboratory C (Lab Fee)	W	2 (3)	P: 17.361, 17.367, 17.382, 17.4—E.E.T. EI	Arthur Bellemore
17.392-2 Project Laboratory C (Lab Fee)	Th	2 (3)	P: 17.361, 17.367, 17.382, 17.4—E.E.T. EI	David Wade
17.427-1 Digital Signal Processing	W	3	P: 17.353, 92.234	Albert Paradis
17.443-1 Photovoltaics	T	3	P: 17.214, 92.125 or instructor permission	William Berg
17.447-1 Fiber Optics in Telecommunications	Th	3	P: 92.126	Marc DonVito
17.469-1 Control Systems II	W	3	P: 17.350	George Biernson
17.477-1 Electromagnetic Theory II	M	3	P: 17.376, 92.234	David Charette
17.484-1 Microprocessor Software	T	3	P: 17.367, 17.380	Philip Arrigo
17.487-1 Analog Filter Design	Th	3	P: 17.350	Albert Paradis

English

42.101-1 College Writing I	M	3		Departmental Staff
42.101-2 College Writing I	T	3		Departmental Staff
42.101-3 College Writing I (6:00 pm-9:00 pm)	W	3		Departmental Staff
42.101-4 College Writing I	Th	3		Departmental Staff
42.102-1 College Writing II	M	3	P: 42.101	William Coughlin
42.102-2 College Writing II	T	3	P: 42.101	Gardner Tillson
42.102-3 College Writing II	Th	3	P: 42.101	William Coughlin
42.104-1 College Writing II for Intl. Students	W	3	P: 42.103	June Tumblin
42.212-1 The Short Story	T	3	P: 42.102	William Hersey
42.220-1 Personal & Reflective Writing	Th		P: 42.102 or inst. perm.	William Roberts
42.224-1*Business Writing (6:00 pm-9:00 pm)	M	3	P: 42.102	William Siegel
42.224-2*Business Writing	T	3	P: 42.102	Nancy Brown
42.226-1*Technical and Scien. Comm. (6:00-9:00 pm)	T	3	P: 42.102	Dirk Messelaar
42.226-2*Technical and Scientific Communication	Th	3	P: 42.102	Dirk Messelaar
42.267-1 Intro to Shakespeare	M	3	P: 42.102	Francesca Tillona
42.291-1 History of English Literature I	Th	3	P: 42.102	David Landman
42.301-1 Topics in Writing: Desktop Publishing	Sat.	3	P: familiarity with Macintosh computers	Departmental Staff

*PLEASE NOTE: Students may not receive credit for both 42.224 and 42.226.

Environmental Sciences

87.115-1 Astronomy	T	3	Area III	Arnold O'Brien
88.101-1 World & Regional Geography	W	3	Area I	Richard Gore

Environmental Technology

See offerings under Civil Engineering Technology, Chemistry, Environmental Sciences, Political Science, and Water/Wastewater Option

History

43.112-1 United States History Since 1877	T	3	Area II	Carol Ann Davis
43.272-1 The American Indian	W	3	Area II	George Luter
43.365-1 U.S. History Since 1960	Th	3	Area II	Pauline Carroll
43.369-1 Russia in the 19th & 20th Centuries	T	3	Area II	Alla Epsteyn
43.380-1 Work and Society	Th	3	Area II	Martha Norkunas
46.357-1 American Environmental Policy	T	3	Area I, Human Values	Dean Bergeron

Industrial Technology

(See separate listings under Manufacturing, Plastics, and Water/Wastewater Options)

Languages

50.102-1 Beginning French II	W	3	P: 50.101	Joseph Garreau
50.212-1 Intermediate Conv. French II	M	3	P: 50.211; Area II	Joseph Garreau
51.102-1 Beginning German II	M	3	P: 51.101	Robert Whelan
52.378-1 Italian Cinema & Culture	M	3	Area II, Human Values	Mario Aste
53.102-1 Beginning Japanese II	Th	3	P: 53.101	Keiko Kiely
53.104-1 Beginning Russian II	W	3	P: 53.103	Rachel Rubin
54.102-1 Beginning Spanish II	W	3	P: 54.101	Departmental Staff
54.212-1 Intermediate Conv. Spanish II	W	3	P: 54.211; Area II	J. Heli Hernandez
54.222-1 Reading & Conversing Spanish II	Th	3	P: 54.221	J. Heli Hernandez
59.209-1 Western Cultural Heritage II	W	3	Area II	Mario Aste

Legal Studies

(Also See Paralegal Studies)				
41.261-1 Introduction to Legal Concepts	W	3		Eugene Reardon
41.262-1 Business Law	T	3		William Burke
41.263-1 Corporate and Property Law	Th	3		Russell Karl
41.365-1 The Legal Environment of Business	M	3		Eugene Reardon
41.366-1 International Law	M	3		Michael Jones
41.376-1 Family Law	M	3		Russell Karl
41.387-1 Legal Research Methods	W	3		Michael Jones

Management

69.221-1 Marketing Principles	T	3	P: 49.201	Raymond Pucci
69.231-1 Business Finance	M	3	P: 67.102, 49.201, 49.202	Frank Inman
69.232-1 Money and Banking	M	3	P: 49.201, 49.202	Ray Pucci
69.251-1 Personnel Management	Th	3	P: 69.201	P.G. Zicari
69.253-1 Intro. to Mgmt. & Org. Behavior (6:00-9:00 pm) (replaces 69.201)	Th	3	P: 47.101	Stuart Freedman
69.253-2 Intro to Mgmt. & Org. Behavior (9:00 am-12:00 noon) (replaces 69.201)	Sat.	3	P: 47.101	Terry McElligott
69.271-1 Operations Management	W	3	P: 69.241	Goang-Tzer Liaw
69.276-1 Entrepreneurial Management	T	3	Mgmt. el.	Mel Epstein
69.278-1 Leadership in Management	Th	3	Mgmt. el.	Sharron Lovins

The above management courses will not transfer into the College of Management Day programs.

Academic Credit Course Listing

Manufacturing Option/Mechanical Engineering Technology

17.380-1 Microprocessors (Lab Fee) (replaces 20.408)	M	2 (3)	P:17.371	Robert Dirkman
23.101-1 Engineering Graphics I (6:00-9:00 pm) (replaces 20.105)	M	2(3)		Christos Demetriou
23.200-1 CADrf* (Lab Fee) (replaces 20.209)	T	3	P: 23.102	Robert Maffia
23.221-1 Statics	W	3	P: 92.125, 99.131; C: 92.126	Robert Hollenbach
23.222-1 Dynamics (replaces 15.238)	Th	3	P: 92.126, 23.221	John McKelliget
23.223-1 Mechanics of Materials	W	3	P: 15.237 or 92.126, 23.221	Hany Riad
23.295-1 Materials Science (replaces 20.201)	W	3	P: 84.121, 99.132	Departmental Staff
23.305-1 Manufacturing Processes (formerly 20.305)	M	3	P: 20.112, 20.105	Richard Minesinger
23.310-1 Industrial Safety	M	3		Richard Gordon
23.314-1 Manufacturing Productivity	Th	3	P: 92.125	Arthur Lochran
23.427-1 Plant Layout & Material Handling	T	3	P: 23.200	William Sommer

NEW Manufacturing Technology Certificate Program (See page 8 for required courses.)

Mathematics

90.010-1 Introductory Mathematics	T	3		Cyril Pipan
90.111-1*Fundamentals of Algebra	T	3		Roger McLeod
90.111.2*Fundamentals of Algebra	Th	3		Anthony Sokolowski
90.111-3*Fundamentals of Algebra (9:00 am-12 noon)	Sat.	3		Ann Wilk
90.112-1 Concepts in Algebra I	T	3	P: 90.111 or Placement exam**; Area III	Dorothy Greenler
90.119-1 Concepts in Algebra II	Th	3	P: 90.112; Area III	Eugene Welch, Jr.
92.111-1 Math Perspectives	T	3	(Liberal Arts Majors Only); Area III	Eric Stanley
92.115-1 College Trigonometry	W	3	P: 92.121	Candice Weston
92.115-2 College Trigonometry	Th	3	P: 92.121	F. Raymond Hardy
92.121-1 Precalculus Mathematics	T	3	P: 90.111 or Placement exam**; Area III	Robert Gravina
92.121-2 Precalculus Mathematics	T	3	P: 90.111 or Placement exam**; Area III	John Savinelli
92.121-3 Precalculus Mathematics	Th	3	P: 90.111 or Placement exam**; Area III	Departmental Staff
92.125-1 Calculus A	M	3	P: 92.115	Allan Gibbs
92.125-2 Calculus A	T	3	P: 92.115	Robert Fradette
92.125-3 Calculus A	W	3	P: 92.115	James Graham-Eagle
92.126-1 Calculus B	M	3	P: 92.125	Leonard Andrusaitis
92.126-2 Calculus B (6:00-9:00 pm)	W	3	P: 92.125	Alan Kaplan
92.126-3 Calculus B	T	3	P: 92.125	Alan Kaplan
92.183-1 Introduction to Statistics	T	3	P: 90.111 or equivalent; Area III	Alexander Olsen
92.222-1 Linear Algebra II	M	3	P: 92.221	Ronald O'Brien
92.225-1 Calculus C	M	3	P: 92.126	Departmental Staff
92.225-2 Calculus C	T	3	P: 92.126	Philip Breen
92.226-1 Calculus D	M	3	P: 92.225	Thomas Marcella
92.234-1 Differential Equations	W	3	P: 92.225	Rida Mirie
92.302-1 Applied Mathematics II (6:30-9:30 pm)	Th	3	P: 92.234	Robert Johnson
92.315-1 Partial Differential Equations	Th	3	P: 92.234	Departmental Staff
92.321-1 Discrete Structures I	M	3	P: 90.112 or 92.121	Anthony Penta
92.321-2 Discrete Structures I	W	3	P: 90.112 or 92.121	Departmental Staff
92.322-1 Discrete Structures II	T	3	P: 92.321	Departmental Staff
92.386-1 Statistics for Science and Engineering	M	3	P: 92.126	Pasquale Condo
92.412-1 Complex Variables II	M	3	P: 92.411	Ashot Shaginyan
92.419-1 Computer Algebra: Mathematica (Lab Fee)	W	3	2 sem. math seq.	Kenneth Levasseur
92.421-1 Abstract Algebra I	T	3	P: 92.221 or 92.321	Anthony Penta
92.454-1 Numerical Analysis II	M	3	P: 92.362 & 92.234	Rida Mirie

*PLEASE NOTE: Fundamentals of Algebra (90.111) is a preparatory course and cannot be credited toward a degree program at the University of Massachusetts Lowell.

**Placement exam is given the first evening of class.

Many 500-level courses are well within the grasp of upper level undergraduates and may be used as electives. Contact the Graduate School for courses listings and admissions procedures.

Mechanical Engineering Technology

23.101-1 Engineering Graphics I (6:00-9:00 pm)	M	2 (3)		Christos Demetriou
23.102-1 Engineering Graphics II	T	2 (3)	P: 23.101	William Mahoney
23.102-2 Engineering Graphics II (6:00-9:00 pm)	Th	2 (3)	P: 23.101	Departmental Staff
23.200-1 CADrf* (Lab Fee)	T	3	P: 23.102	Robert Maffia
23.202-1 Thermo/Fluids Lab (Lab Fee)	W	2 (3)	P: 23.241, 23.242, 42.226	Eugene Niemi, Jr.
23.221-1 Statics	W	3	P: 92.125, 99.131; C: 92.126	Robert Hollenbach
23.222-1 Dynamics (MET)	Th	3	P: 92.126, 23.221	John McKelliget
23.223-1 Mechanics of Materials	W	3	P: 15.237 or 92.126, 23.221	Hany Riad
23.243-1 Elements of Thermodynamics II	Th	3	P: 23.241	Vernon Oliver
23.295-1 Materials Science	W	3	P: 84.121, 99.132	Departmental Staff
23.302-1 Mechanics/Materials Lab (Lab Fee)	M	2(3)	P: 23.222, 23.223, 42.226	Glen Bousquet
23.305-1 Manufacturing Processes (formerly 20.305)	M	3	P: 20.105, 20.112	Richard Minesinger
23.310-1 Industrial Safety	M	3		Richard Gordon
23.314-1 Manufacturing Productivity	Th	3	P: 92.125	Arthur Lochran
23.354-1 Problems in MET	T	3	P: 23.320, 92.225, 92.263	Vernon Oliver
23.402-1 Engineering Measurement Lab (Lab Fee)	W	2 (3)	P: 42.226, 17.132, 23.222, 23.241, 23.242, 92.263	Glen Bousquet
23.427-1 Plant Layout & Material Handling	T	3	P: 23.200	William Sommer
23.471-1 Design of Automatic Machinery	T	3	P: 17.132, 23.320, 92.263	Masood Baig
23.473-1 Mechanics of Materials II (Tech. Elective)	M	3	P: 92.226, 23.223	Frederick Bischoff
23.481-1 Applied CAD Design (Lab Fee)	W	3	P: 23.480	Departmental Staff
23.483-1 Aerodynamics (Tech. Elective)	M	3	P: 23.242, 92.226, 92.263	Eugene Niemi, Jr.

*Some additional projects are required for this course.

Music

71.100-1 Basic Music Theory	W	3	P: for non-music majors only, Area II	Departmental Staff
74.200-1 American Music(6:00-9:00 p.m.)	M	3	Area II	John Ogasapian

"The multibillion dollar security industry employs millions of people annually. Due to a mounting concern over the protection of assets (people, equipment, information), and corporate liability, the security field is projected to create jobs well into the year 2000."

John Pignato,
Certified Protection
Professional, and Industrial
Security Consultant

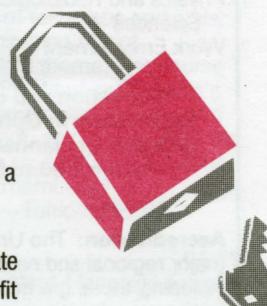
Certificate Program in Security Management

In recent years the need for industrial security professionals has grown dramatically. Career opportunities in this exciting field are available in all industries and a variety of corporate environments.

Courses combine practical instruction by professionals who have extensive experience in the field, with hands-on training in the latest security applications. As a complement to our Criminal Justice degree program, course offerings provide participants with a unique understanding of the private security field as well as exposure to the methods currently available to protect corporate assets.

Graduates of the program will be able to design, implement and supervise security programs that will protect the valuable assets of a company, making a lasting contribution to the profitability of the organization.

This 21 semester hour undergraduate program has been designed for those interested in industrial security as a career. Managers concerned with the protection of corporate assets will also benefit from the program.



Students may take courses in order to obtain a certificate, or they may apply these credits as part of an associate or bachelor degree in Criminal Justice.

Students pursuing other fields of study may use these courses as electives toward an Associate or Bachelor degree. A maximum of three (3) semester hours can be transferred from other institutions.

Required Courses:

- 44.111 Introduction to Industrial Security
- 44.201 Computer Applications in Criminal Justice
- 44.211 Physical Security
- 44.241 Principles of Investigation
- 44.312 Security Management

Electives: (Choose 2)

- 19.401 Occupational Health
- 23.310 Industrial Safety
- 44.234 Criminal Law
- 44.385 Crime and Mental Illness
- 47.272 Abnormal Psychology
- 67.201 Accounting Principles I
- 67.202 Accounting Principles II
- 69.251 Personnel Management
- 84.111 General Chemistry
- 90.457 Computer Security

GRADUATE SCHOOL

During the lull in the economy

- PREPARE For Your Future
- INVEST In Graduate Study

University of Massachusetts Lowell

Registration
January 12, 13 — 4:00-7:00 p.m.
January 14 — 9:00 a.m.-7:00 p.m.
Durgin Hall, South Campus

Classes Begin January 19, 1993

For a Spring schedule
and registration information,
call (508) 934-2380

Degree Programs offered:	
Biology/Biotechnology	M.S.
Business Administration/	M.B.A.,
Management Science	M.M.S.
Chemistry and Polymer Science	M.S Ph.D.
Clinical Laboratory Science	M.S
Community Social Psychology	M.A.
Computer Science	M.S., Sc.D
Criminal Justice	M.A.
Education*	M.Ed.,
Curriculum and Instruction, Reading and Ed.D	C.A.G.S.,
Language, Initial Certification, Educational Administration, Leadership in Schooling, Science and Mathematics Education, Bilingual/ESL	
Engineering	M.S. Eng
Chemical, Civil Computer, Energy, Materials and Systems	
Engineering	M.S. Eng.,
Electrical, Mechanical, Plastics	Eng.D.
Environmental Studies	M.S.
Health Services Administration	M.S.
Mathematics	M.S.
Music	M.M.
Nursing	M.S.
Physical Therapy	M.S.
Physics and Radiological Sciences	M.S. Ph.D
Work Environment	M.S., Sc.D.

***Education will do their own registration in Upham Hall, West Campus, on January 6, 7, and 15, from 2:00 to 5:00 p.m.**

Accreditation: The University has 10 major regional and national accreditations including those granted in engineering, business, education, music, physical therapy, and nursing, as well as numerous professional certifications and memberships.

Faculty: The widely respected faculty have earned national and international recognition for outstanding scholarship and research.

Student Support: In 1992-1993 more than 500 graduate students were supported as Teaching and Research Assistants.

Admissions: Besides fully-matriculated enrollment, the University of Massachusetts Lowell offers non-degree status to students holding a bachelor's degree from an accredited college or university. Provided that they have appropriate prerequisites and departmental approval, such students may complete and transfer up to 12 graduate credits in most programs prior to formal matriculation. Since the majority of graduate courses are offered in the late afternoon and evening, part-time study is possible for those who work during the day.

Cost: The University is proud to offer Massachusetts residents quality education at an affordable cost. Out-of-state students in certain degree programs may qualify for reduced tuition through the New England Regional Student Program.

Academic Credit Course Listing

Paralegal Certificate Program

Please see admission requirements to the Paralegal Program on page 7. Courses are open only to students currently enrolled in the Paralegal Program. Courses are available to other students on a space available basis.

44.103-1 Intro. to Paralegal Studies	T	3	Patricia Hohl
41.376-1 Family Law	M	3	Russell Karl
41.387-1 Legal Research Methods	W	3	Michael Jones
44.301-1 Computer Applications for the Legal Profession (Lab Fee)	T	3	Kathleen Flynn
44.497-1 Paralegal Practicum	M	3	Joseph Lipchitz

Philosophy

45.201-1 Introduction to Philosophy	T	3	Area II, Human Values	Michael Koran
45.202-1 Introduction to Logic	Th	3	Area II	Scott Stripling
45.203-1 Introduction to Ethics	W	3	Area II, Human Values	Christopher Devenney

Physics

99.121-1 Science from Our Lives (Lab Fee)	T	3	Area III	Elizabeth Cavicchi
99.131-1 Technical Physics I (Lab Fee)	T	3 (3.5)	P: 92.115; C: 92.125	F. Raymond Hardy
99.131-2 Technical Physics I (Lab Fee)	Th	3 (3.5)	P: 92.115; C: 92.125	Roger McLeod
99.132-1 Technical Physics II (Lab Fee)	W	3 (3.5)	P: 99.131; C: 92.126	Paul Ring
99.132-2 Technical Physics II (Lab Fee)	Th	3 (3.5)	P: 99.131; C: 92.126	Departmental Staff
99.133-1 Technical Physics III (Lab Fee)	T	3 (3.5)	P: 99.132; C: 92.126	Arthur Mittler

NOTE: Two Friday night classes are required on all Physics courses.

Plastics Option/Industrial Technology

27.202-1 Plastics Material Science II (Lab Fee)	M	3	P: 27.201; or Coordinator perm	Stephen Driscoll
27.301-1 Additives for Polymeric Materials(6-9 pm)	M	3	P: Coordinator perm	R.D. Deanin
27.402-1 Processing Technology II (Lab Fee)	W	3	P: Coordinator perm	Stephen Orroth
27.403-1 Sel Topics VI: Mechanical Behavior of Polymers (6:00-9:00 pm)	Th	3	P: Coordinator/instructor perm	Ross Stacer
27.440-1 Commercial Dev. of Polymers (5:30-8:30 pm)	T	3	P: Inst. permission	Stephen Driscoll
27.454-1 Sel Topics IV: Optical Applications of Plastics	W	3	P: Coordinator/instructor perm	Miftah Rahman

Political Science

46.101-1 Introduction to American Politics	W	3	Area I	Francis Talty
46.121-1 Introduction to International Relations	M	3	Area I	Paula McCabe
46.230-1 Law and the Legal System	Th	3		Francis Talty
46.357-1 American Environmental Policy	T	3	Area I, Human Values	Dean Bergeron

Psychology

47.101-1 General Psychology	Th	3	Area I	David Landigan
47.101-2 General Psychology	W	3	Area I	Maria Michailidis
47.209-1 Social Psychology	T	3	Area I, Human Values	William Berkowitz
47.232-1 Psychology of Personality	M	3	Area I	Departmental Staff
47.255-1 Community Psychology	M	3		Carol Weys
47.260-1 Human Development I	Th	3		Departmental Staff
47.272-1 Abnormal Psychology	W	3		Victoria Bacon
47.328-1 Dynamics of Interpersonal Relations	M	3		Noel Cartwright
47.335-1 Psychology of Women	T	3		Departmental Staff
47.360-1 Human Development II	T	3	P: 47.260	M. Stanford-Pollock
47.474-1 Seminar in Developmental Psychology	W	3	P: 47.101 & Inst. perm	Joan Cannon
47.475-1 Seminar in Clinical Psychology	W	3	P: 47.101 & Inst. perm	Wayne Klug
47.624-1 Internship in Mental Health Counseling and Marriage and Family Therapy	T	3	P: Masters in Psych. and/or Couns. or equiv.	Robert Keating

Sociology

48.101-1 Introduction to Sociology	M	3	Area I	Levon Chorbajian
48.220-1 Self Assessment & Career Development	W	3		Neil Wilson
48.305-1 Sociology of Family Law	M	3	Area I	Mitra Das
48.323-1 Sociology of Ideas and Values	Th	3		Levon Chorbajian
48.325-1 Global Conflict, Peaceful Solutions	Th	3		John MacDougall

Technical Writing Certificate Program

(Technical Communications courses are open to undergraduate and graduate students.)

42.402-1 Software Writing	Th	3	P: 42.401	Michael Doyle
42.403-1 Advanced Software Writing	T	3	P: 42.402	Martha Bednarz

Water/Wastewater Option/Industrial Technology

15.258-1 WW Plant Management (formerly 20.257)	W	3	WW/water exp. or instr. permission	Eric Teittinen
15.280-1 Industrial Waste Treatment (formerly 20.354)	M	3		Donald Burford
15.326-1 Water Chemistry II (formerly 20.226)	W	3	P: 20.225	Charles Panagiotakos
15.355-1 Water Distribution Systems (formerly 20.255)	T	3		Bernard Lucey
15.361-1 WW Treatment Plant Op II (formerly 20.252)	T	3	P: 20.251; C: 15.363/20.254	Donald Pottle
15.361-2 WW Treatment Plant Op II (formerly 20.252)	W	3	P: 20.251; C: 15.363/20.254	Donald Pottle
15.363-1 WW Treatment Plant Op Lab II (Lab Fee)	M	1 (3)	P: 20.253; C: 15.361/20.252	Richard Seymour
15.363-2 WW Treatment Plant Op Lab II (Lab Fee)	W	1 (3)	P: 20.253; C: 15.361	Richard Seymour
15.363-3 WW Treatment Plant Op Lab II (Lab Fee)	Th	1 (3)	P: 20.253; C: 15.361	Steven Hanson
15.363-4 WW Treatment Plant Op Lab II (Lab Fee)	F	1 (3)	P: 20.253; C: 15.361	Steven Hanson
15.363-5 WW Treatment Plant Op Lab II (Lab Fee)	M	1 (3)	P: 20.253; C: 15.361	Therese Champigny
15.372-1 Water Supply and Treat Op II (formerly 20.352)	T	3	P: 20.351	Charles Panagiotakos
15.374-1 Waterworks Op Lab II (Lab Fee) (formerly 20.355)	W	1 (3)	P: 20.353	David Hardman
15.452-1 Op and Maint. of WW Coll. Syst. (formerly 20.452)	Th	3		David Gardner

Community Education

Noncredit Course Listing

**CLASSES BEGIN THE WEEK OF JANUARY 19, 1993
UNLESS OTHERWISE NOTED**

See registration dates and procedures on page 3.

Due to the unique nature of the Community Education Noncredit Courses, registrations cannot be accepted after the first class meeting.

Tuition and Fees

The tuition is indicated after each course description. There is a registration fee of \$15.00 which is listed on the registration form. In addition to the tuition and fees listed, certain courses require the purchase of materials and equipment. Every effort is made to keep these additional expenses to a minimum.

Withdrawal

Students withdrawing from any class must notify the Office of Continuing Education immediately on forms provided by the office. Verbal messages to faculty or staff do not constitute official notification.

Class Cancellations

If classes are canceled due to insufficient enrollment, full tuition and fees will be refunded.

Refunds (Noncredit Courses)

Participants who withdraw before the first class meeting will receive the total amount paid excluding the \$15.00 registration fee. Participants who withdraw following the first class meeting will receive a 50% refund excluding the \$15.00 registration fee. No refunds are given for withdrawal after the second class meeting.

Senior Citizen Waivers

Participants who are 60 and older may register for a Community Education course on a "space available" basis without payment of tuition charges. A fee payment of \$15 per course will be charged and there may be a charge for class materials or texts.

PLEASE NOTE: Courses marked with an asterisk (*) are not available at the reduced tuition rates for senior citizens, state employees etc.

ART

Basic Drawing Techniques: From Still Life to Human Figure

01-01

Instructor: David Lowrey

A variety of drawing assignments from still life to figures using different drawing media. The class will cover the principles of drawing as well as life drawing using the "right side of the brain." Emphasis is on the basic skills essential to developing a personal style of expression. Tues: 7:00-9:30 p.m.—10 weeks—Tuition: \$85.00

Intermediate Drawing Techniques

01-02

Instructor: David Lowrey

A continuation of 01-01. Students in this class are expected to have some drawing skills.

Wed: 7:00-9:30 p.m.—10 weeks—Tuition: \$85.00

Portrait Drawing/Painting

01-03

Instructor: David Lowrey

This course will include instruction in drawing and painting the human face. Students may work in pastels or oils and advance at their own pace.

Mon: 7:00-9:30 p.m.—10 weeks—Tuition: \$85.00

Cartoons I

01-04

Instructor: William Bradbury

Have fun while developing skills in the most popular form of everyday art. Learn tricks and techniques used by professionals. Students will prepare work geared towards the professional market.

Section A: Mon, 7:00-9:30 p.m.—10 weeks

Section B: Sat, 10:00 a.m.-12:00 p.m.—10 weeks

Tuition: \$85.00

Cartooning II

01-05

Instructor: William Bradbury

Explore comic strips, single panel comics, caricature art, advertising and more. Create ideas and find the proper market for your work. Students will work on portfolio development and submitting art for publication.

Thurs: 7:00-9:30 p.m.—10 weeks—Tuition: \$85.00

Introductory Woodcarving

01-06

Instructor: Rupert Stangroom

Covers basic carving with knife and gouges in both the round and relief design, and the care and sharpening of tools.

Mon: 7:00-9:30 p.m.—10 weeks—Tuition: \$85.00

Sign Carving

01-08

Instructor: Rupert Stangroom

Covers the basics of design, layout, and carving signs using chisels and gouges. Art elements and lettering of signs, as well as the care and sharpening of tools will be discussed.

Wed: 7:00-9:30 p.m.—10 weeks—Tuition: \$85.00

Black & White Photography Workshop I

01-09

Instructor: Kyle Brown

Intended for the beginner with a serious interest in the use of creative black and white photography. Attention will focus on beginning technique, including exposure control, lighting, composition principles, film development and print making. The student will learn the basic functions of 35mm photography; developing black & white negatives and prints; the use of filters, flash and studio lights; some basics of the use of color films. Students are encouraged to bring their "problem photos" to class.

Sat: 10:00-11:30 a.m.—10 weeks—Tuition: \$85.00

Calligraphy I

01-12

Instructor: Sr. Cecile Duquette, s.c.o.

The development of calligraphy will be examined, while students work on lettering techniques. Projects will include greeting cards, diplomas or birth announcements, quotes, etc. Students will be given a list of supplies to be brought to the second class.

Mon: 5:30-7:30 p.m.—10 weeks—Tuition: \$70.00

Beginning Decorative Painting

01-13

Instructor: Angela Harkins

You will be painting a series of articles starting with a welcome slate. Other items include a country village bowl, primitive scene barrel staves, a bentwood box, and an Amish prairie plaque.

Tues: 6:00-9:00 p.m.—6 weeks—Tuition: \$50.00

Calligraphy II

01-16

Instructor: Sr. Cecile Duquette, s.c.o.

Prerequisite: 01-12. Students will further develop the skills of Chancery Cursive while learning two other styles of calligraphy. Projects will include logos, titles, book jackets, quotes, designs, menus, labels, posters, etc.

Mon: 7:30-9:30 p.m.—10 weeks—Tuition: \$70.00

Basics of Celtic Design

01-15

Instructor: Arthur Ketchen

An introduction to the art of the Celts of Ireland, Britain, and Europe, best known in the Book of Kells. Interlace, Keyboard, Spiral, and LaTene motifs will be covered. Material needed: One fine tip felt pen, one pad of quality white paper, one medium hard pencil, eraser, one straight edge or ruler.

Tues: 5:30-7:30 p.m.—10 weeks—Tuition: \$70.00

Color Painting with the Three Color Method

01-18

Instructor: Arthur Ketchen

Students will learn to paint in oils, color pencil, and gouache, using the three color method of three primary colors (Magenta, Cyan, Yellow, plus Black and White). The course will begin with simple exercises, including gray scale and color combinations and work up to developed landscapes, still lifes, and figures. Materials list available, some materials available from instructor.

Sat: 10:30 a.m.-12:30 p.m.—10 weeks—Tuition: \$85.00

DANCE

NOTE: All participants must sign a statement of physical condition the first night of class.

Broadway Jazz I

02-02

Instructor: Janice Zawodney

Jazz dance is an indigenous American art form and today is as vibrant and dazzling as ever. Course emphasis will be on dance exercises for stretch and strength. Students will learn basic steps and floor combinations based on the styles of renowned choreographers.

Section A: Tues, 6:15-7:45 p.m.—10 weeks

Section B: Tues, 8:00-9:30 p.m.—10 weeks

Tuition: \$45.00

Ballroom Dancing

02-05

Instructor: Claire LeClair

Learn three of the following dances this semester: Waltz, Foxtrot, ChaCha, Swing, Mambo, Meringue, Tango, Rumba, Disco and Lambada.

Section A: Tues, 7:00-9:00 p.m.—10 weeks

Section B: Wed, 7:00-9:00 p.m.—10 weeks

Tuition: \$55.00

DRAMA

Creative Drama Techniques: Adult Beginner

03-01

Instructor: Henrietta Wagner

You will learn through "role play" the usage of improv actions and dialogue using elements of drama to give form and meaning to the many experiences that will be created. You will be taught the "art" of drama by developing, through various exercises, the ways in which one maintains the beginnings of characterizations.

Section A: Mon, 7:00-9:00 p.m.—10 weeks

Section B: Wed, 7:00-9:00 p.m.—10 weeks—Tuition:

\$70.00

Intermediate Drama

03-02

Instructor: Henrietta Wagner

A continuation of 03-01. This course will be an intense study of characterization in development of the complete character. Dialogue as well as assuming roles in particular plays will create a solid foundation for those who can assume the total concept of dramatics. You will develop an in-depth study of yourself and what it takes to alter "you" into an assumed role. Many physical components of theater, such as set design, lighting design and costume will also be covered.

Thurs: 7:00-9:00 p.m.—10 weeks—Tuition: \$70.00

Screenwriting

03-04

Instructor: Andrew Wolfenden

Learn the basic elements of dramatic writing (plotting and character development) using the three-act structure. Other topics include: how to find an agent, where to submit material, and how to present your script in the most professional manner. Each student's goal will be to develop a full-length screenplay in outline form and to submit a "polished" first act (25-30 pages).

Wed: 7:30-10:00 p.m.—10 weeks—Tuition: \$80.00

MUSIC AND LITERATURE

Introduction to the Guitar

04-01

Instructor: David Surette

Designed to introduce the novice guitarist to the various aspects of playing. Note reading, chords, technique and exposure to the different styles of guitar playing are among the topics that will be covered. Students must bring their own guitar and note book.

Wed: 5:30-7:30 p.m.—8 weeks—Class begins 1/27/93

Tuition: \$55.00

More Guitar

04-02

Instructor: David Surette

Designed for intermediate guitarists, this course will continue with the topics covered in 04-01. Improvisation, theory, repertoire, and familiarity with the entire keyboard will be emphasized, with a strong focus on steel-string acoustic guitar styles.

Wed: 8:00-9:30 p.m.—8 weeks—Class begins 1/27/93

Tuition: \$55.00

Kindred Spirits?

04-03

Louisa May Alcott and Lucy Maud Montgomery

Instructor: Hope Luder

Little Women and Anne of Green Gables are two of the most loved books in children's fiction. Both their authors were interesting, complex women, intelligent and passionate, idealistic and practical, frustrated and unconventional. If you ever loved or felt influenced by either of these authors' works, this is an opportunity to share what appealed to you and why, as well as to learn about their lives. Please bring favorite books by these or comparable authors.

Saturday: 10:00 a.m.-12:30 p.m.—1 Day—3/27/93

Tuition: \$10.00

Writing & Illustrating Children's Books-Part I

04-04

Instructor: Robin Hansen-Cole

The instructor, author of the book Pablo and the Miracle of Saint Anton, will go through the steps in creating a book dummy. Writing the story, rewriting and editing, developing the art, deciding on the length of the book, cutting the text to fit into book form, and doing the rough art will all be part of this course.

Tues: 6:00-9:00 p.m.—10 weeks—Tuition: \$100.00

Writing & Illustrating Children's Books-Part II

04-05

Instructor: Robin

Community Education (Non-Credit) Course Listing

CAREERS AND COMMUNICATING

Assertiveness Training and Communication Skills 05-01

Instructor: David Favreau, M.Ed., (L.C.S.W.) LMHC
A workshop designed for those who want to develop assertive communications skills. Learn how to handle interpersonal situations that may be encountered in personal and professional situations. Class time will also include supervised role-playing situations. Certificate will be awarded upon completion of class.
Wed: 5:30-7:30 p.m.—10 weeks—Tuition: \$70.00

Assertiveness Training for Parents 05-02

Instructor: David Favreau, M.Ed., (L.C.S.W.) LMHC
Designed for parents who would like to develop their ability to set limits, to stand up for their rights as a parent and to vie for the rights of their children without feeling guilty. Learn how to define assertive parenting, build self-confidence in setting limits, family priorities as well as handling anger and conflict in the family. A certificate will be awarded upon completion of course.
Mon: 5:30-7:30 p.m.—5 weeks—class begins 3/8/93
Tuition: \$35.00

Focus on Career Alternatives 05-04

Instructor: Judit Price
Develop satisfying career alternatives based upon your interests, skills and values. Self assessment, testing, interviewing skills, resume writing checklist and creative job search techniques will be explored. Tests will include the Myers Briggs Type Indicator, John Holland Self Directed Search, Harrington O'Shea and others.
Session A: Sat, 9:00 a.m.-2:00 p.m.—2 weeks—class begins 1/23/93
Session B: Sat, 9:00 a.m.-2:00 p.m.—2 weeks—class begins 4/29/93—Tuition: \$55.00

*Color Analysis and Make-Up 05-05

Instructor: Cyndi Lavin Hurley
Find out how you can improve your appearance through wardrobe and cosmetic colors that harmonize with your skin, eyes, and hair coloring. You will receive a skin analysis and facial, a color draping to determine your "season," a makeover, and fabric swatches in your season's colors.
Sat, 10:00 a.m.-1:00 p.m.—1 day—1/23/93
Tuition: \$60.00

*ConFigurations: Dressing to Flatter Your Figure 05-14

Instructor: Cyndi Lavin Hurley
Have you noticed that no amount of exercise, diets, or miracle "cures" will truly reshape your basic body type? Stop fighting against yourself and learn how to choose the clothing that will best enhance your figure! ConFigurations is the computer-assisted method of selecting only your most figure flattering styles from thousands of possible combinations. A ConFigurations booklet will be printed uniquely for you, to reinforce what you learn in class and to aid you in shopping. Your ConFigurations book will be received 7-10 days after class.
Sat: 10:00-12:00 p.m.—1 class—1/30/93—Tuition: \$50.00

(see under College for Young Adults for new course
YA 05-18, Teen Skin Care & Make-Up)

Aggression Replacement Training 05-09

Instructor: David Favreau, M.Ed., (L.C.S.W.) LMHC
Aggression Replacement Training is a step-by-step method of appropriately expressing one's feelings of anger in an assertive, controlled manner. Class emphasis will be on developing skills to control, express and identify angry feelings.
Mon: 5:30-7:30 p.m.—5 weeks—Tuition: \$35.00

This Spring Launch a New Career for Yourself in the Booming Field of Travel and Tourism

What is the employment outlook for the Travel/Tourism industry? In a word, EXCELLENT!
Travel/Tourism is a 2 trillion dollar global business which is expected to be the largest retail industry in the U.S. by the year 2000. Private businesses and public agencies have an acute need for professionally trained personnel to work in all aspects of this rapidly growing field.

*Careers in Travel 05-07

Instructor: Dr. Katharine S. Heiligmann
Ever wonder what it would be like to work in the travel industry? This class presents an overview of career options and practices in this exciting field. You will learn to read airline schedules and receive a geography lesson on the most popular vacation spots. Travel tips will also be given, and students will be evaluated to determine their suitability for this rapidly expanding field. Students should bring a bag lunch to class. Limited Enrollment.
Sat: 9:00 a.m.-2:00 p.m.—1 Day—3/27/93—Tuition: \$25.00

*Travel Industry Basic Training 05-08

Instructor: Dr. Katharine S. Heiligmann
In this comprehensive course, you will acquire the basic skills you'll need to enter the exciting and rapidly expanding travel industry. Through a series of lectures and "hands-on" exercises, students will learn: domestic and international airlines and airfares, selecting hotels and other types of lodging, evaluating car rental options, comparing cruises, and recommending the best choice in rail travel. Effective techniques for planning group, individual, leisure and business travel will be discussed. The final lecture will provide you with a detailed analysis of travel career opportunities and placement strategies. Books are required for the class. Certificate of participation upon successful completion of the course. Limited Enrollment.
Tues: 7:00-9:00 p.m.—10 weeks—class begins 4/6/93
Tuition: \$195.00

NEW Media and Society 05-15

Instructor: Frank Clark
What is TV? What effect does media have in your life? Whether you like them or not, mass communications are a part of modern life—touching on everything from politics to teaching. These questions and others will be discussed as the history, development, impact and esthetics of radio, television, movies and more are examined. Through reading, discussion and home assignments we'll explore this topic and find it both interesting and fun.
Tues: 6:30-8:30 p.m.—6 weeks—Tuition: \$45.00

NEW

The Assertive Auto Buyer

Instructor: David Favreau, M.Ed., (L.C.S.W.) LMHC

If you are considering purchasing a new or used car and feel intimidated about having to negotiate with car dealers this seminar is for you. This seminar will teach you how to prepare to select the right new or used car for you, to develop appropriate consumer expectations, to effectively negotiate with auto dealers and to identify those pressure tactics auto dealers use against you.
Thurs: 5:30-7:30 p.m.—2 weeks—Tuition: \$15.00

FINANCE & REAL ESTATE

Actions taken as a result of these courses is the sole responsibility of the participant. UMASS Lowell assumes no responsibility.

Personal Financial Planning 06-01

Instructor: Gary Breda
This course will cover a wide spectrum of personal money management topics including: building a financial plan, savings, insurance, tax-advantaged investments, real estate investments, stocks and bonds, personal budgeting, financing children's education, retirement planning and investing in your IRA/Keough.
Tues: 7:30-9:30 p.m.—4 weeks—Tuition: \$30.00

Principles of Real Estate 06-06

Instructor: Karen Briere
Provides an understanding of real estate principles and practices necessary for a position as a real estate salesperson. The course will cover such topics as: the Massachusetts Real Estate Salesman's examination, property, brokerage, contracts, financing, closing, appraisal, housing, zoning, the Massachusetts License Law, and real estate math.
Session A: Thurs, 7:00-10:00 p.m.—10 weeks
Session B: Sat, 8:30 a.m.-11:30 a.m.—10 weeks
Tuition: \$100.00

What to Do With Your Lump Sum Distribution 06-08

Instructor: Peter K. Seibert, Investment Broker
A lump sum distribution is the payout of the entire balance from a qualified retirement plan. The receipt of a lump sum distribution often represents the single largest amount of money that one has accumulated over one's lifetime, and carries with it many important personal and financial decisions. Choosing the appropriate tax and investment strategy could have enormous impact. This course will cover alternative choices, tax consequences, IRA rollovers and investment alternatives.
Tues: 6:30-9:30 p.m.—1 night—2/2/93—Tuition: \$15.00

College For Young Adults

Please Note: Courses marked with an asterisk (*) are not available at the reduced tuition rates for senior citizens, state employees, etc.

*Drawing, Painting and Mixed Media YA 01-02

Instructor: Ann Margaret Carey
Student will have an opportunity to explore and develop skills in a variety of media. They will be encouraged to experiment with paint, construction materials, collage and to enjoy a new approach to art.
Thurs: 5:30-8:00 p.m.—10 weeks—Tuition: \$85.00

*Whittling and Knife Work YA 01-08

Instructor: Rupert Stangroom
Carve an animal, a tie slide, a spoon, a totem, and more. Learn to use a knife, sharpen it, and handle it safely. Tools needed: a jack knife or woodcarving knife.
Sat: 9:30 a.m.-12:00 noon—10 weeks—Tuition: \$85.00

Beginning Ballroom Dancing YA02-05

Instructor: Claire LeClair
Learn three of the following dances this semester: Waltz, Foxtrot, ChaCha, Swing, Mambo, Meringue, Tango, Rumba, Disco and Lambada. This semester's schedule will offer the Waltz, ChaCha, and Tango.
Sat: 10:30-12:30 p.m.—10 weeks, Tuition: \$55.00

*Creative Drama for Young Adults YA 03-01

Instructor: Henrietta Wagner
A great tool for future actors and for those who wish to enhance confidence in their creative and expressive abilities. Through "role play," young adults will learn effective use of improvisational actions and dialogue with elements of drama that give form and meaning to different scenarios. Students will be taught various techniques useful in developing and maintaining characterizations.
Section A: Sat, 8:30-10:30 a.m.—10 weeks
Section B: Sat, 10:30 a.m.-12:00 p.m.—10 weeks
Tuition: \$70.00

Due to the continued success of our College for Young Adults Program, we will again offer courses designed for students ages 13-17. Although these courses are primarily geared towards young adults, they are open to everyone. Please follow the same registration procedures listed in the Community Education section of this tabloid.

*Improving Classroom Reading YA 04-02

Instructor: Cathy Campbell Ronan, M. Ed., C.A.G.S.
This course will be a study skills approach to the improvement of reading. Strategies to develop listening, vocabulary, comprehension and thinking skills will be the focus.
Thurs: 5:30-7:30 p.m.—10 weeks—Tuition: \$70.00

*Learning How to Get Your Creative Writing Published YA 04-07

Instructor: Virginia Kimball
Young people can publish too! A workshop on writing poems, plays, essays, articles, short stories, and novels which include ways to edit and critique new writing and favorite pieces which have been put away for safe keeping. The group will publish its own literary journal and each member will submit pieces for publication in the general market with the instructor's help.
Sat: 10:30 a.m.-12 noon—10 weeks—Tuition: \$70.00

NEW * Teen Skin Care and Make-up YA05-18

Instructor: Cyndi Lavin Hurley
With so much conflicting advice about how to care for your skin and look your best, how do you know what to do? You will find the answers at this workshop where we will discuss acne and its treatment, proper skin care techniques and products for teens, and safe, attractive cosmetic use.
Section A: Sat: 10:00-11:30 a.m.—1 Day-2/6/93
Section B: Sat: 10:00-11:30 a.m.—1 Day-2/13/93
Tuition: \$20.00

*Beginning Conversational French YA 08-06

Instructor: Emile Tabea
Designed for the young adult who wants to get better grades in later academic years, both in writing and speaking French with little or no knowledge of the French language. A conversational approach will be taken emphasizing vocabulary, correct pronunciation, and proper word order.
Sat: 10:30 a.m.-12:30 p.m.—10 weeks—Tuition: \$70.00

*Introduction to Keyboarding YA 11-05

Instructor: Claire Bickford
Build your speed and confidence. This course is for students who have little or no experience on typewriters or computers. Using IBM® compatible personal computers, students will learn the basic alpha and numeric keys. Students will also be able to track their speed and accuracy on the terminals.
Sat: 9:00-11:00 a.m.—10 weeks—Tuition: \$70.00

*Vocabulary Workshop I YA 11-09

Instructor: Sr. Cecile Duquette, s.c.o.
This course is aimed at developing, increasing and strengthening your knowledge of words. It may also serve as an excellent preparation for the SAT. Through the use of a comprehensive vocabulary workbook, students become more familiar with words dealing with different areas of the English language.
Tues: 5:30-7:30 p.m.—10 weeks—Tuition: \$70.00

NEW * Vocabulary Workshop II YA 11-10

Instructor: Sr. Cecile Duquette, s.c.o.
A continuation of YA 11-09, this course will help students to further develop, increase and strengthen their word skills. Words used in particular areas of the English language will be reviewed. Students may regard this as a valuable tool in preparation for the SAT's. Advanced level ESL students could also benefit from this course.
Tues: 7:30-9:30 p.m.—10 weeks—Tuition: \$70.00

Community Education (Non-Credit) Course Listing

Planning for Retirement

Instructor: Robert Panessiti, ChFC

The questions that people must face as they plan their retirement could affect whether or not they retire in comfort. Topics include: a study of defined benefit and contribution plans emphasizing maximum distribution techniques, investing for the golden years, long term care, and explanation of current Medicare and Medicaid laws as well as what you can expect from Social Security.

Tues: 7:00-9:00 p.m.—2 weeks—Tuition: \$15.00

06-09

Estate Planning

Instructor: Robert Panessiti, ChFC

Most people have spent their lives building valuable estates, yet many fail to make adequate provisions for the distribution and preservation of their estates upon their death. The probate courts will then decide how much goes to whom, what is to be liquidated to pay estate taxes and fees. This course will demonstrate your estate planning alternatives discussing such topics as probate, taxes, wills and trusts, charitable gift programs and the proper role of life insurance.

Sat: 8:30-10:30 a.m.—2 weeks—Tuition: \$25.00

06-11

Three Threats To Today's Income Investor

Instructor: Peter K. Seibert, Investment Broker

Discover the three most dangerous threats to your investment income. Easy-to-implement strategies to help overcome these threats and investment alternatives designed to boost your spendable income will be covered.

Tues: 6:30-9:30 p.m.—1 night—3/2/93—Tuition: \$15.00

06-10

***Ready, Aim...Retire! For State Employees**

Instructor: Terri Moulton

This course is specifically designed to address the needs of the Massachusetts State Employee in personal pre-retirement planning. Emphasis will be placed on the functions of the Commonwealth's pension plan, TSA accounts, and early retirement concerns.

Section A: Mon, 6:30-9:30 p.m.—1 night—1/25/93

Section B: Mon, 6:30-9:30 p.m.—1 night—2/22/93

Section C: Mon, 6:30-9:30 p.m.—1 night—3/29/93

06-12

NEW

Planning for Exceptional Children

06-15

Instructor: Robert Panessiti, ChFC

Many people spend their lives caring for children with physical or mental disabilities. Yet many fail to make adequate provisions to ensure that the quality of care they have been providing will continue after they have died. This course will demonstrate the proper techniques to provide the level of care and financial support your child deserves.

Wed: 7:00-9:00 p.m.—1 night—1/20/93—Tuition: \$15.00

HEALTH & FITNESS

Adult Swimming & Recreation

07-03

Instructor: Mary Nole

Beginners: prepares the nonswimmer for safe, recreational activity in or about the water. See below for additional information pertaining to class.

Fri: 6:00-7:00 p.m.

Recreation period: 7:00-7:30 p.m.—10 weeks

Tuition: \$80.00

Intermediates: familiarizes participants with proper stroke mechanics in 5 categories: elementary backstroke, sidestroke, breast stroke, front crawl, and distance swimming. See below for additional information pertaining to the class.

Fri: 7:30-8:30 p.m.

Recreation period: 7:00-7:30 p.m.—10 weeks

Tuition: \$80.00

Additional Information for Beginners and Intermediates:

For the first class meeting, beginners and intermediates will meet together at 6:00 p.m. where the participant's ability will be tested. Students are then placed in the proper class category for the next class session. All students must be 18 years of age or older. Participants will be expected to sign a statement of physical condition. Classes are co-ed. Bring personal equipment, soap and towel. A pass will be available for an additional fee for the 10-week period so students may practice during the University's normal recreation hours. Recreation hours will be posted.

07-04

***Yoga**

Instructor: Lynn Simon

The slow-motion exercises of yoga relieve tension and stress while strengthening and toning the body and energizing the mind. Yoga is recommended as a tool for stress management and weight management. NOTE: Students should wear comfortable clothing and bring a small mat, towel or blanket. All participants must sign a statement of physical condition.

Section A: Mon, 6:30-8:00 p.m.—10 weeks

Section B: Sat, 9:30-11:00 a.m.—10 weeks

Tuition: \$65.00

***Meditation**

07-05

Instructor: Lynn Simon

Meditation is a natural, useful tool to help us "let go" and regain control of body and mind. It can improve concentration, heighten creativity and awareness, and calm the body through the "relaxation response." Techniques are drawn from several forms of meditation, so that individuals can choose and design their own personal practice. NOTE: Students should wear comfortable clothing and bring a small mat, towel or blanket. All participants must sign a statement of physical condition.

Section A: Mon, 8:15-9:30 p.m.—6 weeks

Section B: Sat, 11:15-12:30 p.m.—6 weeks

Tuition: \$50.00

***Your Key to Self-Defense & Safety**

Instructor: Michael de Bethencourt

Learn how to defend yourself with the correct use of the key chain/key stick self defense tools known as Persuaders, Kubotans and the Mini-Mag pocket flashlight. This is the same program originally developed as a self defense method for Los Angeles police women. The course is taught by a certified instructor and materials will be provided. Limited enrollment.

Wed: 7:00-9:15 p.m.—2 weeks—Tuition: \$15.00

07-07

Healthy Nails

Instructor: Fran Broderick

Explore the basics of good grooming for your hands and feet. Learn "hands on" healthy guidelines to better looking nails.

Wed: 6:00-8:30 p.m.—6 weeks—Tuition: \$40.00

***A Comprehensive Guide to Personal Protection I:**

07-20

Instructor: Greg A. Danas, Director, Instructional Shooting Inc.

This course explores the nature of crime and the measures available to public citizens as a deterrence to crime. Study various philosophies and arguments relative to lethal and non-lethal force and observe examples of effective protective measures that will offer moral, physical and psychological alternatives. This course will cover firearms, chemical weapons (mace), impact weapons, pressure point control and hand to hand.

Sat: 12:00-5:00 p.m.—1 day—2/6/93—Tuition: \$65.00

***A Guide to Personal Protection II:**

07-21

Instructor: Greg A. Danas, Director, Instructional Shooting Inc.

A continuation of course 07-20, this course will probe the thought process behind the use of the force continuum theory and analyze application of lethal and non-lethal forces. Study issues from the perspective of the general public, law enforcement, and the legal system. A comprehensive, no-nonsense guide to protective measures, the effects on society and the mental preparation required to intelligently and effectively recognize the degree of action necessary in a confrontation. Please Note: 07-20 is a prerequisite.

Sat: 9:00 a.m.-1:00 p.m.—1 day—3/6/93—Tuition: \$65.00

***Chemical Mace Certification**

07-22

Instructor: Peter Danas, Law Enforcement Chemical Weapons Instructor

Aerosol subject restraint has become increasingly popular as a method of nonlethal personal protection. This four-hour class will cover Massachusetts laws pertaining to ownership of chemical agents; advantages and disadvantages of using chemical agents; properties and effects of chemical agents; methods of carry and deployment; alternatives; first aid and decontamination; and benefits of certification. Certification is valid for two years.

Sat: 9:00 a.m.-12:00 p.m.—1 day—4/3/93 Tuition: \$65.00

LANGUAGE & CULTURE

Conversational Spanish I

08-04

Instructor: Fausta Asimakopoulos

Designed for the person who wants to become familiar with Spanish, this course emphasizes useful everyday conversation that is essential when traveling or working.

Wed: 5:30-7:30 p.m.—10 weeks—Tuition: \$70.00

Conversational Spanish II

08-05

Instructor: Fausta Asimakopoulos

A continuation of 08-04, with additional emphasis on conversational skills.

Thurs: 5:30-7:30 p.m.—10 weeks—Tuition: \$70.00

Beginning Conversational French

08-06

Instructors: Dr. Roger Lacerte and Emile Tabea

Designed for the beginner with little or no knowledge of the French language. This course takes a conversational approach emphasizing vocabulary, correct pronunciation, and proper word order. Students will develop skills needed to speak and understand everyday French.

Section A: Tues, 7:30-9:30 p.m.—10 weeks

Section B: Sat, 8:30-10:30 a.m.—10 weeks

Tuition: \$70.00

Continuing Conversational French

08-07

Instructor: Dr. Roger Lacerte and Emile Tabea

A continuation of 08-06, providing additional exposure to the French language.

Section A: Wed, 7:30-9:30 p.m.—10 weeks

Section B: Thurs, 7:00-9:00 p.m.—10 weeks

Tuition: \$70.00

Advanced Conversational French

08-08

Instructor: Dr. Roger Lacerte

Designed to give students who have mastered the essentials of oral French (pronunciation, intonation, word order) further practice and to develop reading and simple writing skills.

Thurs: 7:30-9:30 p.m.—10 weeks—Tuition: \$70.00

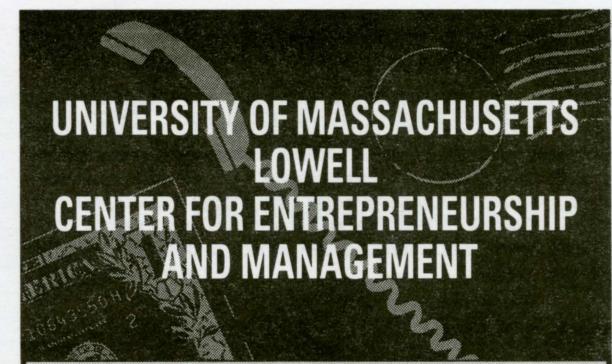
Franco-American Culture

08-11

Instructor: Dr. Roger Lacerte

This course will focus on one of New England's oldest and largest linguistic groups—descendants of French-Canadians. Literary endeavors in novels, poetry, song, theatre and folklore will be discussed in their historical context. This course will be taught in French—mostly!

Mon: 7:00-9:00 p.m.—10 weeks—Tuition: \$70.00



If you have always wanted to start your own consulting firm, import/export firm, mail-order business or any self-supporting venture—now is the time to prepare yourself for the future.

***Starting your own Import-Export Business I**

13-03

Instructor: Mel Epstein

This seminar covers how to develop a complete import-export strategy: selecting products, identifying distributors, arranging transportation and payments, satisfying U.S. Customs requirements, and meeting export regulations. Includes how to locate overseas suppliers and buyers, and how to develop strategy that will work for you. Each participant will receive a 100 page pamphlet and Harvard Business School Case Study. (HBS)

Sat: 10:00 a.m.-6:00 p.m.—1 day—1/23/93

Tuition: \$74.00

***Starting Your Own Consulting Practice**

13-04

Instructor: Mel Epstein

For those in any field who want to design a strategy for starting and succeeding in the consulting business. The course will cover the three key elements of success in the consulting business: organizing, financing, and marketing. Topics include: how to identify potential clients, how to advertise, how to make a sales presentation, how to price your services, how to close a sale, how to translate your expertise into being an effective consultant, writing successful proposals, knowing when to give free advice, strategies for gaining acceptance of your consulting advice throughout an organization, techniques for estimating tasks and time required to complete a project. Emphasis is on developing a strategy that will work for you.

Sat: 10:00 a.m.-6:00 p.m.—1 day—2/13/93 Tuition: \$74.00

***Starting your Own Mail Order Business**

13-05

Instructor: Mel Epstein, President and founder of Business Strategies, a consulting firm in Cambridge, MA which assists individuals and companies in implementing successful business plans.

Learn the basics of succeeding in the mail order business by following the six key steps: developing your mail order concept, selecting merchandise, preparing an ad or catalog, renting mailing lists, and monitoring results. Includes a Harvard Business School case study, and a video of L.L. Bean's methods for managing a mail order business. You will learn how to begin with a classified ad, how to estimate your response rate, how to use a financial feasibility formula for a mail-order venture. (HBS)

Sat: 10:00 a.m.-6:00 p.m.—1 day—2/20/93

Tuition: \$74.00

***Entrepreneurship: Starting and Succeeding in any type of Business**

Community Education (Non-Credit) Course Listing

English as a Second Language for Beginners 08-14

Instructor: Alexander Boch and Starr Pipilas

Intended to help the beginning student who is somewhat familiar with the English language, and has a verbal and written skill level equal to the 4th or 5th grade. The course includes drilling in the basics of grammar, usage, and vocabulary words.

Section A: Tues, 6:30-8:30 p.m.—10 weeks

Section B: Sat, 8:30-10:30 a.m.—10 weeks

Tuition: \$70.00

English As A Second Language for Advanced Beginners 08-15

(Skill equivalent to grades 6 & 7)

Instructor: Gail Anne Desmond

Intended to help the beginning student who is somewhat familiar with the English language. Extensive drilling in the basics of grammar, usage and vocabulary words.

Section A: Tues, 6:30-8:30 p.m.—10 weeks

Section B: Sat, 10:00 a.m.-12:00 p.m.—10 weeks

Tuition: \$70.00

English As a Second Language for Intermediates 08-16

(Skill equivalent to grades 8 & 9)

Instructor: Sr. Cecile Duquette

Intended to help the student who has already acquired some knowledge of the English language. It is designed to further develop the mechanics of grammar and usage.

Intense practice on building a larger and more meaningful vocabulary.

Thurs: 5:30-7:30 p.m.—10 weeks—Tuition: \$70.00

English As a Second Language —Advanced 08-17

(Skill equivalent to grades 10 & 11)

Instructor: Sr. Cecile Duquette

Designed for students who have English grammar and usage skills at a verbal and written level equal to the 10th or 11th grade. Through intense practice of vocabulary skills, students will feel more comfortable using the English language at work and at home.

Wed: 5:30 p.m.-7:30 p.m.—10 weeks—Tuition: \$70.00

***English Pronunciation for Foreign-Born Speakers I 08-18**

Instructor: Rebecca Z. Shafir M.A.CCC

Developed for those who have a good command of the English language, but find their accent to be a problem. In this class, students will improve listening skills that are necessary to discriminate between sounds. A personal speech analysis and participation in drill activities to improve pronunciation patterns will also be a part of the class.

Mon: 6:00-7:30 p.m.—8 weeks—Tuition: \$80.00

***English Pronunciation for Foreign-Born Speakers II 08-19**

Instructor: Rebecca Shafir

Intended for those with mild to moderate foreign accents, who need work on some of the more subtle pronunciation errors that accompany prosody and rate. The emphasis will be on varied types of conversations, group discussions and work-related presentations.

Mon: 7:30-9:00 p.m.—8 weeks—Tuition: \$80.00

PLEASE SEE COURSES YA 11-09 & YA 11-10 (COLLEGE FOR YOUNG ADULTS) FOR VOCABULARY COURSES WHICH MAY BE OF HELP TO THE ESL STUDENT.

LOWELL AND HISTORY

The Architecture of Lowell 09-02

Instructor: Stephen Stowell

Explore the architectural and physical development of Lowell, its residential, commercial, institutional, and industrial structures as well as its streets, canals, and public places. Topics covered include the influence of historic architectural styles, the city's physical evolution and historic preservation. Classroom discussions will be supplemented by downtown and neighborhood walking tours.

Tues: 7:00-9:00 p.m.—6 weeks—Tuition: \$50.00

House Histories 09-03

Instructor: Stephen Stowell

Discover how to trace the genealogy of any house or building. Follow the trail of old books, photographs, maps, atlases, building records, and other clues. The basics of architectural research will be examined including an overview of historic architectural styles and research methods.

Tues: 7:00-9:00 p.m.—3 weeks—Class begins 3/9/93

Tuition: \$35.00

The Religions of Lowell 09-07

Instructor: Virginia Kimball

Understand the varieties of religions which have made a home in Lowell, established a distinct tradition, and built a culturally representative worship place in the city. Class discussion will highlight basic beliefs of each tradition followed by visits to the worship centers. Included in the course are Lowell's outstanding communities of: Catholicism, New England Protestantism, Judaism, Greek Orthodoxy, Hinduism, Buddhism and Islam.

Tues: 7:00-9:00 p.m.—10 weeks—Tuition: \$70.00

Sacred Text—Its Oral And Written Sources 09-10

Instructor: Virginia Kimball

This course explores the sacred texts of Judaism, Christianity, Islam, Hinduism, and Buddhism. It will examine the scriptures of each tradition in terms of oral and written text, methods of understanding the text, examination of devotional practices that have grown out of the text, and relationships that holy scriptures of one religion have to another. Readings will be selected in the Torah and Talmud, Christian New Testament, Qu'ran, the ancient Vedas, the Bhagavad Gita, and the Dhammapada.

Wed: 7:30-9:00 p.m.—10 weeks—Tuition: \$65.00

NEW

Celtic Civilization

Instructor: Arthur Ketchen

This course will offer an overview of the civilization of the Celts and their descendants (Irish, Scots, Manx, Welsh, Cornish, Bretons, Gallegos, Asturians, Basques) all over Europe and the world. Guest speakers will address particular areas of Celtic culture, such as music, visual arts, language or law.

Thurs: 6:00-8:00 p.m.—12 weeks—Tuition: \$84.00

SPORTS & RECREATION

NEW

Sailing and Seamanship 10-01

Instructors: Arnold & Elizabeth Greenhouse, U.S. Coast Guard Auxiliary

This course is designed for beginning sailors or sailors that want to brush up. Course will include lessons in Legal Requirements, Aids to Navigation, Marlinspike, Rigging, Boat Handling, Basic Sailing, and Maneuvering, Towing and Heavy Weather, Navigation Rules, Radiotelephone, Piloting and more.

Tues: 7:30-9:30 p.m.—13 weeks—Tuition: \$45.00

Fly Tying 10-02

Instructor: Jack Johnson

Basic Fly tying instruction covering the dry fly, wet fly, streamer, bucktails, and salmon flies. Tying techniques for other types of flies to be used for salmon, trout, bass and saltwater fishing.

Tues: 6:30-9:30 p.m.—7 weeks—Tuition: \$70.00

(Limit: 12)

Fly Fishing 10-03

Instructor: Jack Johnson

This comprehensive course will teach the beginning fly fisher the history, equipment, quarry, habitat, behavior of fish, casting and many other aspects of fly fishing as a recreational sport.

Wed: 6:30-9:30 p.m.—7 weeks—Tuition: \$70.00

Boating Skills and Seamanship 10-04

Instructor: U.S. Coast Guard Auxiliary

This course is designed for the beginning power boater or boater that wants to brush up. Training is provided in boat handling, legal requirements, rules of the road, aids to navigation, boater's language and trailering, marine engines, marlinspike seamanship, weather, radiotelephone and piloting. Successful completion of the course and multiple-choice exam will qualify the student for appropriate discounts on their boat insurance.

Mon: 7:30-9:30 p.m.—10 weeks—Tuition: \$35.00

***Deluxe Open Water SCUBA Course 10-05**

Instructors: David Morton and Glen Douglas are certified in Standard First Aid and CPR as well as rescue diving.

Learn the basics of this exciting underwater sport in a nationally certified course. With 7 classrooms and 6 diving sessions, the student progressively learns the skills and techniques necessary to enjoy one of the fastest growing outdoor sports in America. Two dives will be held offshore, and two off a Professional Dive Charter Boat in scenic Cape Ann, MA. The course includes textbook, dive tables, certification card, and all SCUBA gear needed for the first session. After the first class, students must bring their personal diving gear consisting of mask, fins, snorkel, and weight belt with 8 pounds of lead. Upon completion of the course and the 4 open water check-out dives, the student will earn a certification from PADI (The Professional Association of Diving).

Note: Candidates should be comfortable in an ocean environment. All participants must sign a statement of physical condition the first night of class. **BRING TOWEL & SWIM SUIT TO FIRST CLASS SESSION.**

Sat: 8:00-11:30 a.m.—7 weeks—Tuition: \$340.00

Schedule For Deluxe Open Water Scuba Program:

Class	Date	Time
Swim Evaluation	Sat, 3/6/93,	8:00 a.m.
Class & Pool Session 1	Sat, 3/13/93,	8:00 a.m.
Class & Pool Session 2	Sat, 3/20/93,	8:00 a.m.
Class & Pool Session 3	Sat, 3/27/93,	8:00 a.m.
Class & Pool Session 4	Sat, 4/3/93,	8:00 a.m.
Class & Pool Session 5	Sat, 4/10/93,	8:00 a.m.
Class, Pool & Final	Sat, 4/17/93,	8:00 a.m.

Private Pilot Course 10-07

Instructor: Donald Dodge

Designed for those who want to obtain a private pilot's certificate. A pilot who wishes a refresher course for the biannual flight review required by the F.A.A., or the spouse who flies with their mate will also find this class very helpful.

Section A: Mon, 7:30-10:00 p.m.—10 weeks

Section B: Wed, 7:30-10:00 p.m.—10 weeks

Tuition: \$85.00

Wine Tasting Workshop—Connoisseur 10-08

Instructor: Charles Saunders

An introduction to the major wine regions, varieties and types. Tasting and serving techniques will be explored, along with the fundamentals and uses of wine.

Approximately 25 wines will be tasted. An additional charge of \$25.00 to cover the cost of the wines is due at the first meeting. Students must be of legal drinking age.

Tues: 7:00-9:30 p.m.—6 weeks—Tuition: \$45.00

Wine Tasting Workshop—Advanced/Oenophile 10-09

Instructor: Charles Saunders

A follow-up to 10-08, this workshop explores more detailed and specific regions. Tasting, selecting, cellaring and serving techniques will be covered along with a review of the Davis grading system. Approximately 35 wines from Beaujolais, Loire Atlantique, Vouvray, Sancerre, Australie, Bordeaux, Burgundy, Alsace, Germany and dessert wines will be tasted. An additional charge of \$35.00 to cover the cost of the wines will be collected at the first meeting. Students must bring two glasses to each class. Students must be of legal drinking age.

Mon: 7:00-9:30 p.m.—6 weeks—Tuition: \$45.00

Mixology: Or How To Make A Good Drink 10-10

Instructor: Normand Robillard

This course gives more than an introduction to concocting the most popular drink recipes. It covers the needs of a small house party to a professional situation. Class is conducted by a professional host. Lectures will start with the basics—proper handling and set up of a bar and glass identification—and continue with a discussion of product knowledge, liquor analysis and recipes, wines and cordials. Students are responsible for quizzes and weekly projects based on class lectures. Certificates are awarded upon recommendation of instructor. Students must be of legal drinking age.

Section A: Mon, 6:45-9:15 p.m.—10 weeks

Section B: Wed, 6:45-9:15 p.m.—10 weeks

Tuition: \$85.00

***Basic Gun Safety Course 10-12**

Instructor: Greg Danas, President, Instructional Shooting Inc.

The objective of this course is to teach the basic knowledge, skills and attitude necessary for the safe and proper use of a pistol in shooting a stationary target. This course includes training on gun parts and operation, ammunition, safety, cleaning, storage, loading procedures, shooting fundamentals and pistol sports and activities. Students participate in range firing exercises under the supervision of three instructors. Upon successful completion of this training, certification is provided to you and local licensing authorities that you have qualified to safely and knowledgeably handle a firearm under the provisions of Massachusetts Law. Course fee includes textbooks and ammunition used.

Section A: Sun, 8:00 a.m.-6:00 p.m.—1/24/93

Section B: Sun, 8:00 a.m.-6:00 p.m.—3/28/93

Tuition: \$120.00

SKILL ENHANCEMENT AND REFRESHER COURSES

Fundamentals of Accounting 11-01

Instructor: Sr. Suzanne-Marie, s.c.o.

This course is designed to teach basic bookkeeping terms, principles and techniques for both service and merchandising businesses. Learn how to journalize, make ledger entries and prepare basic financial statements.

Wed: 5:30-7:30 p.m.—10 weeks—Tuition: \$70.00

***Introduction to Computers 11-03**

Instructor: Kathleen Morse

This two-week workshop is designed to overcome computer anxiety and to introduce the novice to the computing process. Using the BASIC language, participants will write a number of simple programs which make use of computing principles taught in class. Students will also be

Community Education (Non-Credit) Course Listing

HOME AND DESIGN

Designing & Building the Micro-Energy System House 12-01

Instructor: Gene Leger

A series of discussions that present a practical insight into the building of a Micro-Energy System House (also known as "super insulated house") These building techniques can eliminate the need for a central heating system and reduce heating bills to the vanishing point. Builders, contractors, designers, and laymen who are contemplating building, renovating or expanding present structures are encouraged to attend.

Thurs: 5:30-8:00 p.m.—8 weeks—Tuition: \$80.00

Quilting for Beginners 12-02

Instructor: Frances Ward

Learn the basics of quilt making including 9 patch, 8 pointed star, hand applique, log cabin and quilt assembly techniques. You can create a lovely sampler quilt by hand or machine. Stitching in class is by hand. Quilt assembly is by machine. You may bring your sewing machine to class when assembling, but this is not necessary. A list of materials and a discussion on fabric choices will be given during the first class. No prior experience necessary.

Mon: 7:00-9:00 p.m.—10 weeks—Tuition: \$70.00

Interior Design 12-04

Instructor: Nancy Lesofsky

The instructor, a participating decorator in the Spring 1992 Decorator's Show House and Garden Tour, by the Junior League of Boston, will help you learn how fabric, light, wall and floor treatments, together with furnishing and accessories can be combined to create unique environments reflecting individual tastes and life-styles.

Section A: Thurs, 5:30-7:30 p.m.—10 weeks

Section B: Thurs, 7:30-9:30 p.m.—10 weeks

Tuition: \$70.00

Introduction to Floral Design 12-05

Instructor: Collette Ruiter

The basic rules of floral design, using silk and dried materials will be taught. Decorating for the different seasons and holidays will also be covered. Students will bring their own supplies to class (containers and flowers). On the first night, learn how to make bows the professional way! (Please bring scissors) A list of supplies and suppliers will be given to the students.

Section A: Mon, 6:30-9:30 p.m.—8 weeks

Section B: Thurs, 6:30-9:30 p.m.—8 weeks

Tuition: \$80.00

Introduction to Antiques, Collectibles and Auctions 12-11

Instructor: John W. Francis, Owner/Operator of Jack Francis Auctions

An introductory course designed for people new to collecting antiques, or for those in possession of antiques who want to know more about them and their value. Glass, pottery, porcelain, folk art and primitives, as well as buying and selling successfully at auctions will be touched upon. Slides, videos and actual antique pieces will be used to illustrate important concepts. Time will be set aside during each class to appraise antiques brought in by class members.

Wed: 6:30-9:30 p.m.—10 weeks—Tuition: \$90.00

Introduction to American Furniture 12-12

Instructor: John W. Francis, Owner/Operator of Jack Francis Auctions

This is an introductory course stressing three hundred years of American antique furniture. History, styles, construction, hardware, good vs. poor quality and fakes will constitute a major portion of this course. The remaining weeks will be devoted to metals: silver, brass, bronze, and others. Additional topics (such as selling practices at auction houses and dealer markets) not usually discussed outside the inner circle of dealers, auctioneers and appraisers will also be included. Course also includes tips on when to use an antique dealer and when not to.

Thurs: 6:30-9:30 p.m.—10 weeks—Tuition: \$90.00

More Quilting - Applique 12-14

Instructor: Frances Ward

Construct a lovely Country Bride Applique Wall Hanging using applique technique. Size approximately 40" by 40". This may also be expanded into full size quilt top. Template patterns will be provided. At first meeting, we will discuss color choices and materials.

Wed: 7:00-9:00 p.m.—6 weeks—Tuition: \$42.00

BUSINESS AND MANAGEMENT

***Supervisory Management** 13-01

Instructor: Cliff Scott, Senior Consultant, Organizational Development, Bolt, Beranek and Newman

This course presents the fundamentals of supervision to front-line supervisors, foremen and other first-time managers. Topics covered include: managing people, developing and maintaining the work team, leadership and effective supervision. Lectures, group discussions and case studies will be used. A certificate will be awarded upon successful completion of the course. Limited enrollment.

Mon: 7:00-9:00 p.m.—8 weeks—Tuition: \$125.00

***Applied Communications**

Instructor: Brian Trainor

The objective of this course is to bridge the gap between the classroom and the real world of business communications, as well as to expose Art and Business students to a variety of communications disciplines, techniques, and problems. Specific communications disciplines covered include: Print & Collateral Material; Still Photography; Illustration; Video Production; Sound Engineering; Trade Shows; Speaker Support Presentations; Copy/Concept Development; and Interactive Training Applications. A professional from each discipline will bring his/her experience to the class by presenting an actual business case/problem. Students will be given an opportunity to offer solutions which will then be compared with the solution purchased by the client. Course will include a number of company tours.

Mon: 7:00-9:00 p.m.—8 weeks—Tuition: \$50.00

13-11

NEW

How To Write A Successful Grant 13-22

Instructor: Martha Norkunas, Lowell Historic Preservation Commission

The instructor has prepared a number of successful grants and has served on many grant review panels. The course will assist you in identifying your project goals, developing a realistic budget and how to clearly explain what you want to do, why you want to do it, when and where your project will take place and who will benefit. Limited enrollment-registration on a first come first serve basis.

Wed: 10:00 a.m.-12:00 noon—2 weeks—Class begins 1/20/93—Tuition: free (non-credit registration fee must be paid).

SPRING 1993 PC USER INSTITUTE

It's clear that no matter what career path you choose, computers will be part of your life. You can learn to use some of the most popular software application programs to help you become more productive in your job, or to assist you with your personal computing needs. All of our user-friendly noncredit courses—from an Introduction to Personal Computers to Desktop Publishing—are designed to provide practical computer applications training. Taught by experienced professionals in the field, these programs are available on both IBM® PC compatibles and Macintosh® computer systems. Certificates are available upon recommendation of the instructor.



Since class size is limited, early registration is encouraged.

For further information about these programs, please contact Cathy Kendrick at 934-2495. The following courses will be offered:

IBM® PC WORKSHOPS

***Introduction to Personal Computers**

(Using IBM PC Compatible)

Instructor for Sessions A & B: Joanne Driscoll, Education Specialist, Powersoft Corp., Burlington, MA

Instructor for Session C: Paul DePetrillo, Executive Marketing Programs, Wang Labs, Inc.

This course is designed for those who have purchased or are considering purchasing a personal computer, or those who anticipate having to work with one. Topics will include what a personal computer can do, the memory unit, keyboard and operating system. The class will also discuss a variety of different software programs such as word processing, spreadsheets, and database management. No previous computer experience necessary.

Session A: Mon, 7:00-9:00 p.m.—5 weeks

Class begins January 25, 1993

Session B: Wed, 7:00-9:00 p.m.—5 weeks

Class begins January 20, 1993

Session C: Thurs, 7:00-9:00 p.m.—5 weeks

Class begins March 25, 1993

Tuition: \$95.00

11-12

***Advanced WordPerfect**

Instructor: Kelly Laffey

This course provides a detailed study of WordPerfect's advanced features, including mail merge, sort, column capabilities, and macros. Pre-requisite: Introduction to WordPerfect or equivalent experience.

Sat: 9:00 a.m.-5:00 p.m.—1 day—4/3/93—Tuition: \$125.00

11-37

***Advanced Lotus 1-2-3**

Instructor: Kelley Laffey

This course covers advanced aspects of Lotus 1-2-3, including macros, in-depth use of the database, and a study of the most effective ways to use Lotus 1-2-3. Pre-requisite: Lotus 1-2-3 or equivalent experience.

Thurs: 7:00-9:00 p.m.—6 weeks—Class begins January 21, 1993

Tuition: \$180.00

11-39

***MACINTOSH® WORKSHOPS**

***Desktop Publishing**

An Introduction to PageMaker®

Instructor: Darryl Benjamin

This hands-on workshop will provide a step-by-step introduction to Aldus® PageMaker, the most widely used page layout software application on the Mac. Initial topics will include opening a new or preexisting PageMaker publication or template, formatting the page(s), placing and manipulating graphics and text blocks, defining text styles and attributes, setting up master pages, and using column guides. Prerequisite: Students should have basic, hands-on familiarity with the Macintosh. Limit: 10

Mon: 7:00-9:30 p.m.—6 weeks—Class begins January 25, 1993

Tuition: \$200.00

11-20

***Advanced PageMaker**

Instructor: Darryl Benjamin

Advanced PageMaker picks up where An Introduction to PageMaker leaves off. With the basics now under your belt, the gap between knowing the mechanics of PageMaker and actually having experience will be closed. Advanced PageMaker concentrates on gaining valuable hands-on experience and using advanced features while producing:

- Newsletters
- Brochures
- Flyers
- Long Documents
- Ads
- and much more!

Prerequisites: An Introduction to PageMaker or equivalent and any word processing program. Limit: 10

Mon: 7:00-9:30 p.m.—6 weeks—Class begins March 22, 1993

Tuition: \$200.00

11-22

***How to Start and Run a Desktop Publishing Business** 11-24

Instructor: Darryl Benjamin

It requires more than a comfortable knowledge of your DTP package to run a DTP business. Learn how to find and keep clients, how to keep your business growing, how to work efficiently, how to charge, whether or not to incorporate, what hardware or software you will need, and much more. For anyone who is seriously considering starting their own DTP, Design, and/or Illustration business. Please bring your own bag lunch. No lab sessions.

Sat: 10:00 a.m.-4:00 p.m.—2 days—4/3/93 and 4/10/93

Tuition: \$90.00

More Quilting - Applique

Instructor: Frances Ward

Construct a lovely Country Bride Applique Wall Hanging using applique technique. Size approximately 40" by 40". This may also be expanded into full size quilt top.

Template patterns will be provided. At first meeting, we will discuss color choices and materials.

Wed: 7:00-9:00 p.m.—6 weeks—Tuition: \$42.00

BUSINESS AND MANAGEMENT

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Instructor: Cliff Scott, Senior Consultant, Organizational Development, Bolt, Beranek and Newman

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Mon: 7:00-9:00 p.m.—8 weeks—Tuition: \$125.00

C O M P U T E R S

Certificate of Computer Proficiency

"Anyone who wants to become more employable in today's competitive and uncertain job marketplace should consider expanding one's computer skills and background."

Professor Bernard Shapiro, Mathematics Department

Enhanve Your Job Prospects with our Certificate Program in Computer Proficiency!

The University of Mass Lowell offers an open enrollment certificate program in Computer Proficiency designed to provide a broad based background in computers. Currently, there are over 300 students pursuing the Certificate of Computer Proficiency at the University of Massachusetts Lowell.

The need for professionals with a strong computer background will continue to increase as business, government, schools, and scientific organizations seek new applications for computers and improvements to the software already in use. Further automation of offices and factories, advances in health and medicine, and continuing scientific research will drive the growth of employment for computer professionals.

The requirements for earning this certificate include completion of 5 computer courses with a grade of "C" or better. Of these five courses, **Microcomputers and Applications Software and Introduction to PASCAL** are required for all participants. The remaining three courses can be chosen from a list of over 25 computer courses offered by Continuing Education (see partial listing below). These courses are offered four times each year.

Students who earn this certificate may count the courses taken towards a degree in Information Systems.

Required Courses:

92.202 Microcomputers & Applications Software
92.265 Introduction to Pascal

Electives (Choose 3):

92.219 Basic Programming	92.364 Problem Solving with Pascal
92.263 Fortran Programming	92.365 Cobol Programming I
92.267 "C" Programming	92.368 Cobol Programming II
92.311 Introduction to UNIX Operating System	92.461 Systems Simulation and Modeling
92.321 Discrete Structures I	92.468 Microcomputer Principles and Applications
92.360 Data Structures	92.470 Data Communications
92.363 Intro to Data Analysis (SPSSX)	92.474 Data Base Concepts

Certificate Program in Technical Writing

One occupation most in demand between 1991 and 1995 in the Metropolitan Boston area will be Technical Writing

Source: March 1991 issue of Money Magazine

This part-time, evening program allows you to become a technical writer in 10 months. Anyone with strong writing skills and an aptitude for computers is qualified to enter the Program. The Program will train participants to be proficient in desktop publishing, hypertext, software documentation, microcomputer and application software, and programming languages using UMass/Lowell's VAX system and PC computer labs. All instructors are practicing professionals from the high tech industry. Take advantage of special internship opportunities, apply for scholarships sponsored by the Society for Technical Communication, and qualify for our excellent placement program. Benefiting from our industry advisory board of representatives from Digital, Wang, Prime, Sun Microsystems, and Hewlett-Packard, the program teaches the use of most current technologies and processes.

Technical Writing Certificate

Required Courses

42.401 Principles of Technical Writing
42.402 Software Writing
42.403 Advanced Software Writing

92.202 Microcomputer and Applications Software
Desktop Publishing or Computer Elective

Certificate Program in UNIX

"UNIX" and 'C' programming represent two of the skill sets most in demand in the computer industry today."

Andrew Garside, Senior Software Engineer, Digital Equipment Corporation.

As more and more organizations move in the direction of "open systems", the UNIX operating system will become the standard most opted for by companies and organizations interested in improving efficiency and containing costs.

The Certificate program in UNIX is designed to give professionals a working knowledge of UNIX principles. Being fluent in UNIX can make the difference in winning a job or promotion, as more personnel directors regard knowledge and fluency in UNIX principles as a key criteria for job recruitment and selection.

The program is also designed for those currently in the computer industry who want to upgrade their skills, or those with some basic computer literacy that want to enter this fast growing field.

Potential career paths for those who successfully complete the UNIX certificate program are: System Administrator, System Programmer, or Application Programmer. The Certificate program can help you move into an entry level job in these growth areas of the future. As Cobol programming becomes more obsolete, "C" programming will continue to be perceived as the more flexible language that can move users from one system to another.

UNIX Certificate Certificate

Required Courses:

92.267 C Programming
92.360 Introduction to Data Structures
92.311 Introduction to the UNIX Operating System
92.312 UNIX Shell Programming

Electives (Choose 1)

92.313 UNIX Internals Overview
92.314 UNIX System Interface Programming
92.315 Developing Portable Applications
92.268 C++ Programming
92.316 UNIX System Administration

UNIX is a registered trademark of UNIX System Laboratories, Inc.

Certificate Program in Data Communications

"Anyone interested in advancing in the computer industry without having a thorough understanding of Networking principles risks being left behind."

Ray Vigeant, Director of Telecommunications, UMass Lowell.

As the trend to standardize on a communications platform continues to escalate, more and more trained personnel in data communications will be required to support a desk-top computing environment.

Networking is a multi-billion dollar industry. More and more hardware types are being adapted to an open architecture system. As these global trends accelerate, a large number of computing stations will need to be tied together, whether its a local area network (LAN), a wide area network (WAN), or connecting LANS to WANs. As a result, networking experience will become invaluable.

Potential career paths for those who successfully complete the certificate program are entry level positions as network administrators, technicians who can establish a LAN in an office environment, and technical personnel who can troubleshoot problems in a LAN installation. Systems analysts responsible for networking functions in large or small companies will also benefit from the program.

Data Communications Certificate

Required Courses

92.267 Programming
92.311 Introduction to UNIX Operating System
92.470 Data Communications
92.472 Local Area Networks

92.473 Computer Network Architecture and Protocols
92.475 Communications Network Management

W A T E R / W A S T E W A T E R T R E A T M E N T

Certificate Program in Water Treatment

"Environmental Industries, especially in the areas of Water and Wastewater Treatment will offer some of the most explosive career growth opportunities in the 1990's"

Don Pottle, Department Head of Engineering Technology, University of Mass Lowell

The EPA drinking water standards are now compelling many communities to provide complete treatment for public water supplies. Courses in this program are intended to provide students with the technical knowledge to operate and maintain physical-chemical water treatment facilities and water distribution systems. These courses will also prepare students for the Massachusetts water treatment certification exam.

Due to the new EPA regulations, within the next decade numerous communities will be constructing and operating new modern drinking water facilities in Massachusetts. Personnel in charge of these facilities will need to be certified. The most effective way to prepare for these certification exams is to complete the specialized courses taught by the University of Mass Lowell Continuing Education Department.

Personnel who should attend include : municipal officials who work in the area of water treatment and distribution as well as personnel seeking rewarding careers in this environmental area.

Water Treatment Certificate (19 credits, 7 courses)
A total of 7 courses: 5 required plus 2 electives

Required Courses

15.272 Water Supply & Treatment Operations I 3 credits
15.274 Water Works Operations Lab I 1 credit
15.372 Water Supply & Treatment Operations II 3 credits
15.355 Water Distribution Systems 3 credits
15.225 Water Chemistry I 3 credits

Electives (Choose 2)

15.388 Pumps and Compressors 3 credits
15.152 Water Biology 3 credits
15.492 Water/Wastewater Plant Management 13 credits
15.374 Water Works Operations Lab II 1 credit

Certificate in Wastewater Treatment

"Environmental Industries, especially in the areas of Water and Wastewater Treatment will offer some of the most explosive career growth opportunities in the 1990's"

Don Pottle, Department Head of Engineering Technology, University of Mass Lowell

Due to the demand for municipal and industrial wastewater treatment plant operators, the University of Mass Lowell has developed a certificate program in wastewater treatment. Courses are designed to provide basic knowledge to operating personnel and to prepare individuals for both the industrial and municipal wastewater certification exams.

Those who should attend include personnel desiring career paths in this dynamic field and those currently working in the field who want to upgrade their skills and be certified at higher grades. Courses are provided for both municipal (biological) plants and industrial (physical/chemical) treatment plant operations.

Many industries in Massachusetts, especially those in the high technology area, have built and will continue to build industrial treatment and pre-treatment works. The Massachusetts Water Resources Authority has started construction on a 1 billion gallon per day modern Wastewater Treatment Facility. This plant which will be the second largest secondary wastewater treatment plant in the United States will require over 700 operations type personnel. At the present time there are 300 operators at the old primary plants and MWRA will need in excess of 400 new people for this operation.

Wastewater Treatment Certificate (17 credits, 7 courses)

A total of 7 courses: 5 required plus 2 electives

Required Courses:

15.261 Wastewater Treatment Plant Operations I 3 credits
15.361 Wastewater Treatment Plant Operations II 3 credits
15.263 Wastewater Treatment Lab I 1 credit
15.363 Wastewater Treatment Plant Lab II 1 credit
15.280 Industrial Waste Treatment 3 credits

Electives (Choose 2):

15.152 Water Biology 3 credits
15.225 Water Chemistry I
15.492 Water/Wastewater Plant Management I 3 credits
15.388 Pumps and Compressors 3 credits
15.493 Operation & Maintenance of Wastewater Collection Systems 3 credits